United States
Department of
Agriculture

Soil
Conservation
Service

In Cooperation with
Virginia Polytechnic Institute
and State University

Soil Survey of Albemarle County, Virginia

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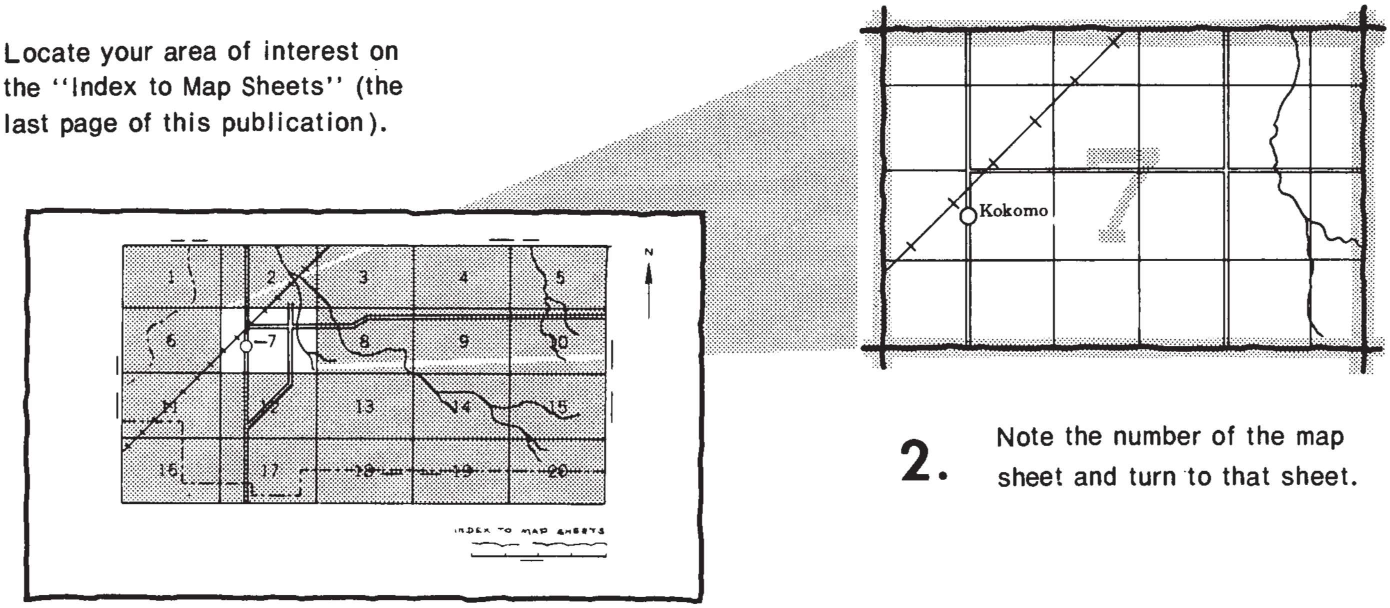

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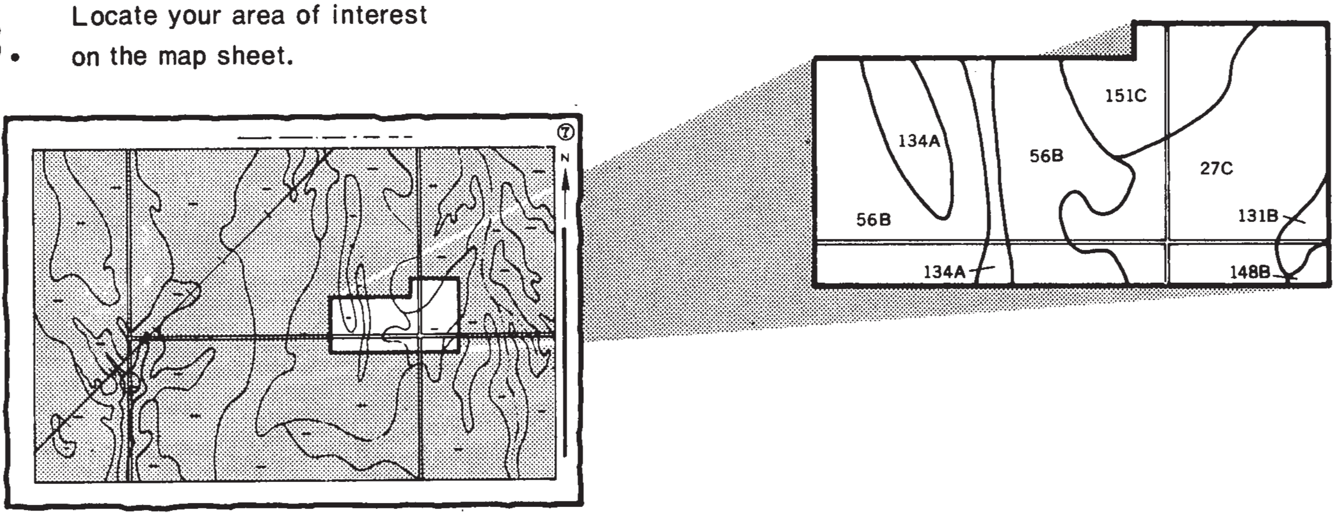

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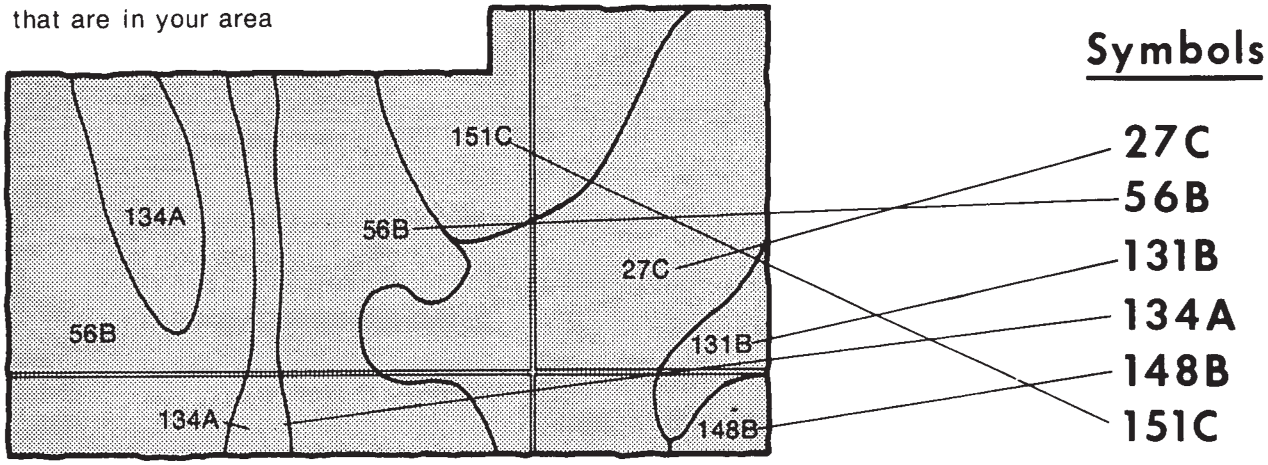

THIS SOIL SURVEY

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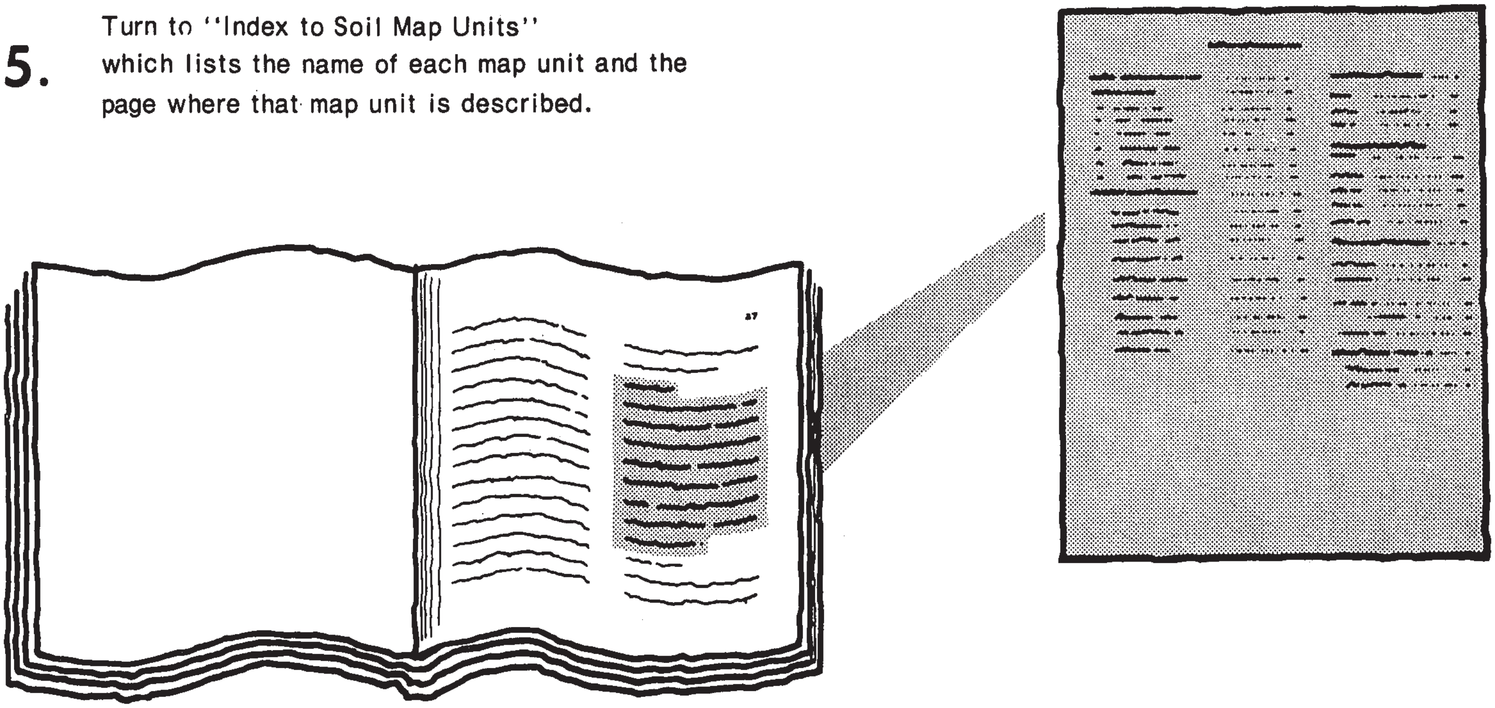
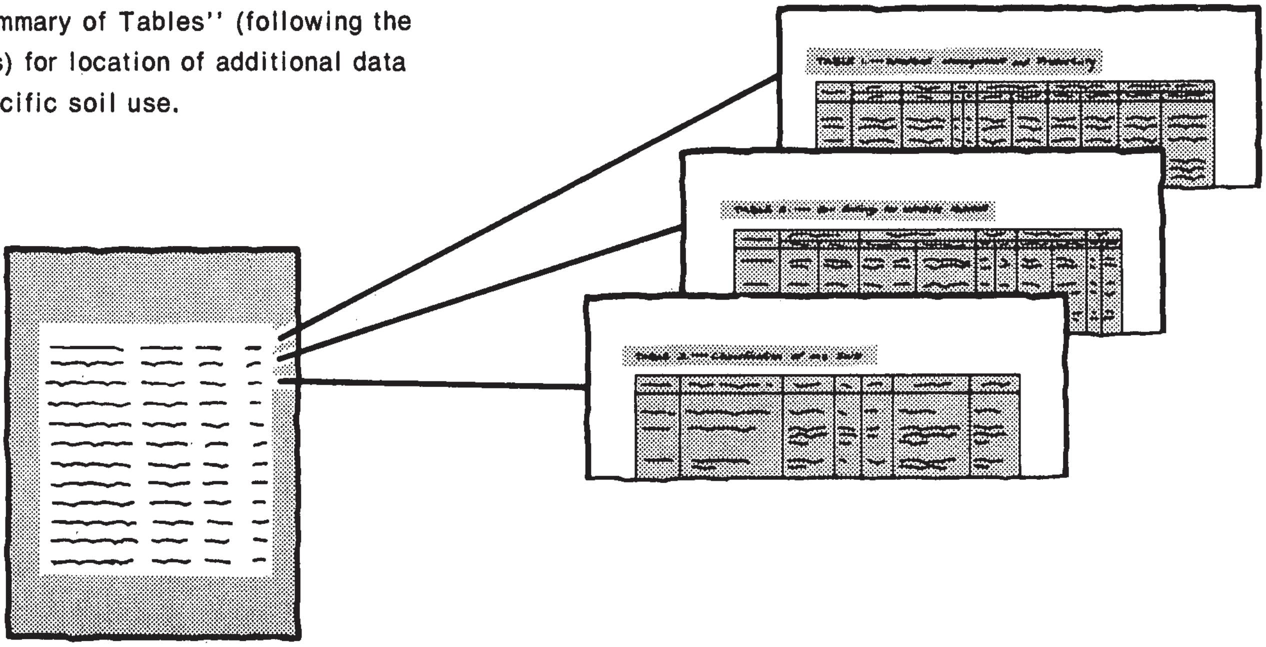


6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; for specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in 1981. Soil names and descriptions were approved in 1981. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1980. This survey was made cooperatively by the Soil Conservation Service and the Virginia Polytechnic Institute and State University. It is part of the technical assistance furnished to the Thomas Jefferson Soil and Water Conservation District. This survey was financed partly by the Virginia Soil and Water Conservation Commission and the Albemarle County Board of Supervisors.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Monticello, the home of Thomas Jefferson, in an area of Davidson clay loam, 2 to 7 percent slopes. Thomas Jefferson, an early leader in conservation in this nation, recognized the features of a productive soil and chose an excellent site for his home. Photo by courtesy of the Thomas Jefferson Memorial Foundation.

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Foreword

This soil survey contains information that can be used in land-planning programs in Albemarle County, Virginia. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

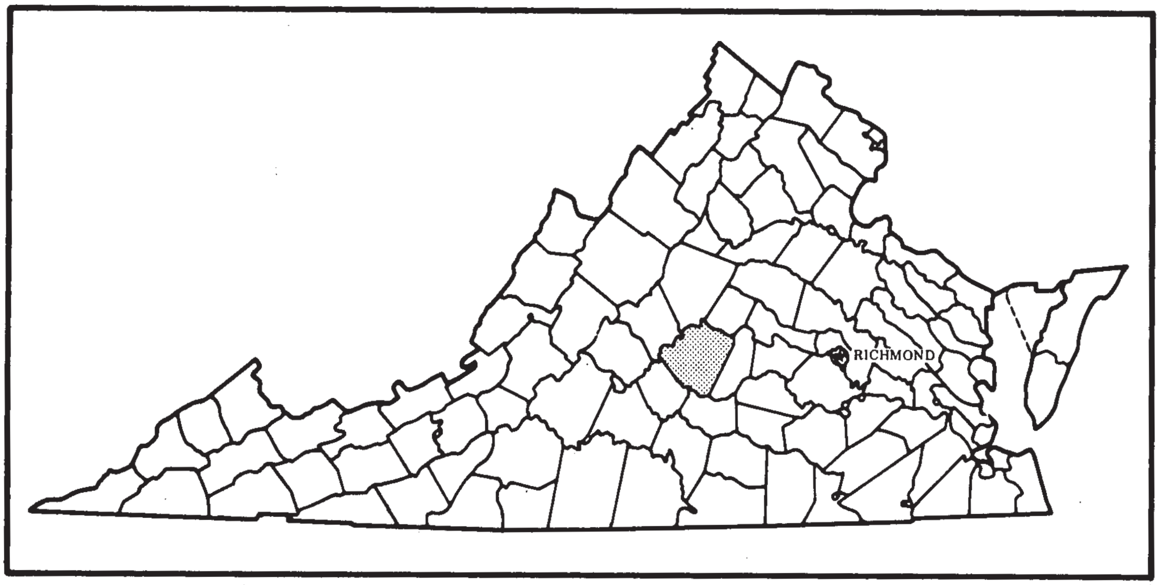
This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Manly S. Wilder

Manly Wilder
State Conservationist
Soil Conservation Service



Location of Albemarle County in Virginia.

Soil Survey of
Albemarle County, Virginia

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Soil Conservation Service

Fieldwork by John B. Carter, James D. Wright, Jr., Rim C. Gardner
Roy L. Vick, Jr., Kenneth E. Harward, Earl H. Brunger, Louis W. Heidel
and John C. Nicholson, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
in cooperation with Virginia Polytechnic Institute and State University

ALBEMARLE COUNTY is in north central Virginia. The county is about 39 miles north and south and about 21 miles east and west. The total area of the county is about 741 square miles, or 474,000 acres. Charlottesville is the county seat.

Greene and Orange Counties form the northern boundary of Albemarle County. Louisa and Fluvanna Counties are along the eastern boundary. The James River is the southeastern boundary and separates Albemarle County from Buckingham County. Nelson County is on the south. The crest of the Blue Ridge is the western boundary and separates Albemarle County from Augusta and Rockingham Counties.

Many of the soils in the county are suited to a large number of crops, and farming is an important occupation. The climate is favorable for general farming and the raising of livestock. Many areas of the county are suited to the use of modern farm machinery. Much of the land in farms is used for pasture and hay. Corn, barley, oats, and other crops are grown and are fed mainly to livestock. Dairy cattle and beef cattle are the dominant livestock, but some sheep, hogs, and horses are also raised. Poultry and poultry products and orchards are important sources of farm income.

In 1964 about 75 percent of the total income from farm products was derived from the sale of livestock and livestock products, including dairy products and poultry and poultry products.

Many industries are in the county. Among these are manufacturers of office equipment, frozen foods, aircraft instruments, and telephone equipment. Also included are manufacturers of tire cord and fabric, welding products, circuit breakers, and panel boards. Other industries are lumber mills, grain mills, and radio and television transmitting.

About 60 percent of the survey area is wooded. Wood products are important to the economy of the county.

An older soil survey of Albemarle County was published in 1940. The present survey updates the earlier one and provides additional information and larger maps that show the soils in greater detail.

General Nature of the Survey Area

This section gives general information about the county. It discusses history and development; climate; physiography, geology, and drainage; water supply; and transportation.

History and Development

Settlement of the survey area started about 1734. Albemarle County was formed from a part of Goochland County in 1744. It was named in honor of the second Earl of Albemarle, who later became Governor of Virginia. The first courthouse was built in 1745 near present-day Scottsville. In 1761 the courthouse was moved north near the Rivanna River. Here, Charlottesville was established in 1762 and was incorporated as a city in 1888. Today, the city of Charlottesville covers about 10 square miles or 6,600 acres.

In 1980, the population of Albemarle County was about 50,600. This did not include Charlottesville, which had a population of about 45,000.

The survey area abounds in many points of historic and scenic interest and draws thousands of visitors throughout the year. Monticello, the home of Thomas Jefferson; Ash Lawn, the home of James Monroe; The University of Virginia, and the Shenandoah National Park are among the most visited places.

Climate

Prepared by the National Climatic Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Charlottesville in the period 1949 to 1978. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 37 degrees F, and the average daily minimum temperature is 28 degrees. The lowest temperature on record, which occurred at Charlottesville on January 17, 1977, is -2 degrees. In summer the average temperature is 75 degrees, and the average daily maximum temperature is 85 degrees. The highest recorded temperature, which occurred at Charlottesville on September 7, 1954, is 107 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 46 inches. Of this, 24 inches, or 54 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 20 inches. The heaviest 1-day rainfall during the period of record was 7.49 inches at Charlottesville on June 29, 1972. Thunderstorms occur on about 24 days each year, and most occur in summer.

The average seasonal snowfall is 23 inches. The greatest snow depth at any one time during the period of record was 20 inches. On an average of 6 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

Physiography, Geology, and Drainage

Albemarle County is within the Piedmont and Blue Ridge physiographic provinces. Elevation ranges from 250 feet where the Rivanna River and the James River leave the county to 3,250 feet at the summit of Loft Mountain.

The Piedmont province makes up about 82 percent of the county. It is well dissected by many small streams and rivers that flow in narrow, meandering valleys. The landscape is mostly gently sloping to moderately steep, but in places it is steep. Along the lower tributaries of the major streams, entrenchment has been rapid and bluffs and V-shaped valleys are common. The walls of the valleys are steep, and they rise abruptly from the flood plains.

This province is broken in places by long, low hills and mountains. These include Ragged Mountain, Dudley Mountain, Fan Mountain, Bucks Mountain, Piney Mountain, and Southwest Mountain. Elevation ranges from 1,200 feet to 2,400 feet in these mountains. The low hills range from 600 to 1,200 feet in elevation. The smoothest relief in the Piedmont province is east of Southwest Mountain. The elevation ranges from 250 to 600 feet. Most of the soils are well drained throughout the Piedmont, but a few poorly drained soils are along streams, on toe slopes, and in a few saddles.

The Blue Ridge province makes up most of the western part of the county and is only 18 percent of the total land area. It is steep and rugged. It has been strongly dissected by many intermittent and permanent streams that have cut deep, narrow valleys bordered by steep rocky slopes and narrow ridges. Slopes are moderately steep to very steep. Elevation ranges from about 1,200 feet to 3,250 feet. The soils are stony, shallow to deep, and well drained to excessively drained.

Albemarle County is drained by the James River and three of its major tributaries, the Rockfish, Hardware, and Rivanna Rivers, and the numerous tributaries of these rivers. The headwaters of the South Anna River extend into this county a fraction of a mile near Gordonsville. The headwaters of the North Anna River extend into this county over a mile near Barboursville. All of the tributaries of the James River flow in entrenched, meandering channels that cross the structural trend of this area. The drainage, in places, is in a well defined trellis pattern. In other places, it is in a poorly defined pattern of the same type.

The rocks of Albemarle County are igneous, sedimentary, and metamorphic.

Water Supply

Albemarle County is within two major watersheds. About 98 percent is within the James River watershed and 2 percent is within the York River watershed.

The Rivanna River, a major tributary of the James River, drains a large part of the northern and central sections of the county. The principal tributaries of the Rivanna River include the North Fork Rivanna River, Buck Mountain Creek, Moormans River, and Mechum River. The southern part of the county is drained by the Hardware River and a few small tributaries of the James River. The James River forms the southeastern boundary of the county. A small northeastern part of the county that is in the York River watershed is drained by small headwater tributaries of the South Anna River and the Rapidan River.

Surface water is soft and of good quality. There are five reservoirs in the county being used for water supply. Charlottesville, Crozet, and Scottsville have publicly owned water systems.

Albemarle County is within the unglaciated Appalachian ground water region, which is characterized by mountains and hilly uplands separated by broad valleys. The availability of ground water in a given area varies as a result of differences in the underlying rock formation. Adequate ground water supplies for domestic, public, and industrial uses can be developed in most areas of Albemarle County. The eastern part of the county offers the lowest ground water potential. Wells in the county range from 30 to 1,100 feet in depth. Water yields range from 1 gallon to 165 gallons per minute. Depth to hard rock ranges from 2 to 110 feet below the surface.

In most parts of the county an adequate supply of water is obtained from springs, wells, and streams. Farm ponds are used to supply water for livestock. Approximately 1,200 farm ponds have been built in the county.

Transportation

Albemarle County has approximately 31 miles of interstate highway. Interstate 64 crosses the center of the county. It runs from the top of the Blue Ridge in Nelson County to the southern tip of Charlottesville and through Fluvanna County en route to Richmond.

There are approximately 146 miles of primary roads in the county. Of these, about 45 miles are divided highway or three-lane highway. U.S. Highway 29 runs north and south, and U.S. Highway 250 runs east and west. They intersect in the city of Charlottesville. There are approximately 745 miles of secondary roads in the county. Of these, about 477 miles are hard-surface. Except during periods of extreme weather most farms have fairly easy access to markets and to Charlottesville.

Major railroads in the county provide freight and passenger service to parts of the county and to connected points outside the county.

An airport is near Charlottesville. This airport is served by a major airline that maintains daily schedules to other cities in Virginia and to connecting points outside the state.

Motor freight service is provided by local and long-distance carriers. Major commercial buslines serve the county with daily schedules and charter, freight, and express package service. Some city buslines provide transportation within cities. Several companies offer taxi service throughout the county.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biologic activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with considerable accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another resulting in gradual changes in characteristics. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in prograss, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. These latter soils are called inclusions or included soils.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use of require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed, and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation to precisely define and locate the soil is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Upland Areas of the Blue Ridge

These soils are in the western part of the survey area. They formed in the residuum of greenstone, granite, and gneiss. Most of the soils have rock fragments on the surface. Most of the soils are strongly sloping to steep, but some on ridgetops and in colluvial areas are gently sloping.

1. Myersville-Catoctin-Lew

Deep and moderately deep, well drained soils that have stones on the surface and a loamy subsoil; formed in colluvium or material weathered from greenstone

This map unit consists of high mountain ridges, mountain sides, and colluvial slopes in mountains. The ridges are strongly sloping, the mountain sides are moderately steep or steep, and the colluvial slopes are strongly sloping or moderately steep.

This map unit makes up about 6 percent of the county. It is about 49 percent Myersville soils, 23 percent Catoctin soils, and 11 percent Lew soils. Soils of minor extent make up about 17 percent.

The Myersville and Catoctin soils are strongly sloping to steep and are in a complex pattern on the landscape. They have a dark brown silt loam surface layer that is very stony. The Myersville soils have a yellowish red silty clay loam subsoil. The Catoctin soils have a strong brown very channery silt loam subsoil.

The Lew soils are mostly along drainageways and are strongly sloping and moderately steep. They have a dark brown channery silt loam surface layer that is very stony or extremely stony. The subsoil is yellowish red very channery silty clay loam.

Of minor extent in this map unit are the well drained Hartleton soils on ridges and mountain sides and the excessively drained Cataska soils on the steeper positions.

Most of the acreage of this map unit is wooded (fig. 1). A small acreage is used for pasture. All of the Skyline Drive in Albemarle County is in areas of this map unit.

The soils in this map unit are not suited to cultivation. They are moderately well suited to poorly suited to pasture. They are suited to trees. Potential productivity for trees is moderate to high. The steep slope, however, restricts the use of logging equipment. Erosion is a hazard along logging roads and skid trails.

This map unit is poorly suited to sanitary facilities and building sites. Slope and rock fragments are the main limitations.

2. Parker-Chester-Porters

Deep, excessively drained and well drained soils that have stones on the surface and a loamy subsoil; formed in material weathered from granite and gneiss

This map unit consists of mountain ridges and sides slopes in mountains. The ridges are strongly sloping, and the side slopes are moderately steep or steep.

This map unit makes up about 11 percent of the county. It is about 43 percent Parker soils, 34 percent Chester soils, and 4 percent Porters soils. Soils of minor extent make up about 19 percent.

The Parker soils are mainly on side slopes and narrow convex ridgetops and are excessively drained. They have a brownish yellow very cobbly loam surface layer that is very stony or extremely stony. The subsoil is dark yellowish brown extremely cobbly loam.

The Chester soils are mostly on side slopes and ridges and are well drained. They have a very stony dark brown loam surface layer and a yellowish red clay loam subsoil.

The Porters soils are mostly on ridges and on north- or west-facing side slopes and are well drained. They have a black cobbly loam surface layer that is very stony. The subsoil is brown loam.

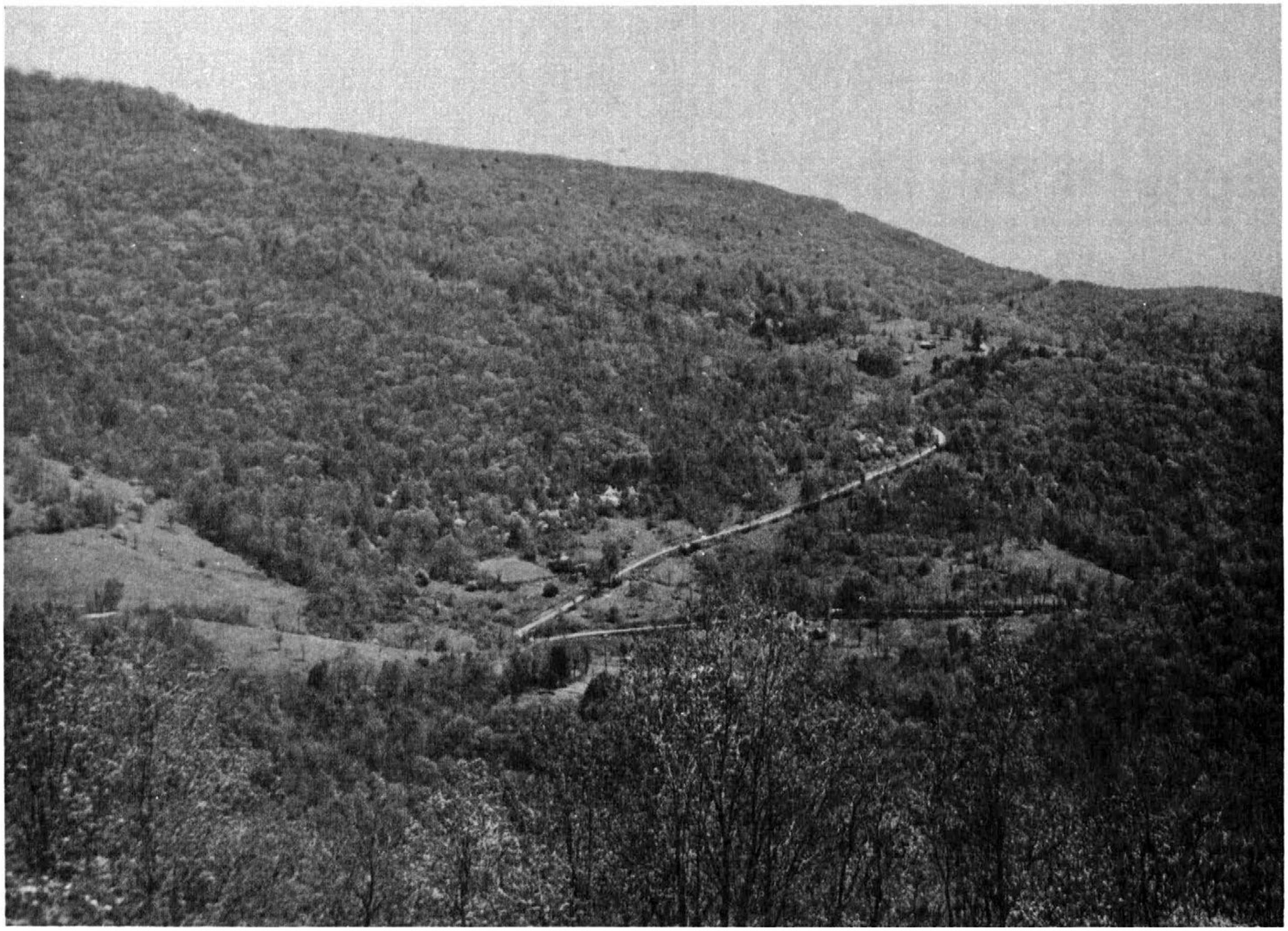

Figure 1.—An area of the Myersville-Catoctin-Lew map unit on side slopes of the Blue Ridge. Catoctin very stony silt loam, 7 to 15 percent slopes, is near the top left; Lew very stony silt loam, 15 to 25 percent slopes, is near the middle of the slopes; and Myersville silt loam, 7 to 15 percent slopes, is in the cleared area near the road.

Of minor extent in this map unit are the somewhat excessively drained Ashe soils and the well drained Cullen and Hayesville soils on broad ridgetops and side slopes on uplands. The well drained Braddock, Dyke, Thurmont, and Unison soils are on uplands on old colluvial terraces and side slopes, and the well drained Hiwassee soils are on high stream terraces on uplands. Also of minor extent, on recent alluvial or colluvial positions, are the somewhat poorly drained Belvoir soils, the well drained Lew soils, the moderately well drained to well drained Meadowville soils, the well drained Tusquitee soils, and the poorly drained Worsham soils. These soils are along streams, at the heads of drainageways, and in depressions. The well drained Craigsville and Toccoa soils are on flood plains.

Most of the acreage of this map unit is in woodland. Some of the acreage on the less steep slopes is used for pasture.

The soils in this map unit are not suitable for cultivation mainly because of the very stony surface layer and steep slope. They are moderately well suited to poorly suited to pasture, depending on the steepness of slope and the amount of stones on the surface. Establishing and maintaining a mixture of grasses and legumes and prevention of overgrazing are major pasture management concerns.

These soils are well suited to trees. Potential productivity for trees is moderately high to high, and the soils are managed mostly for mixed hardwoods. The steep slope, however, restricts the use of logging equipment, and erosion is a hazard along logging roads and skid trails. The soils are poorly suited to sanitary facilities and building site development. Steep slope and rock fragments are the main limitations.

Colluvial Terraces in the Blue Ridge and on the Piedmont

These soils are in the western part of the survey area at the base of the Blue Ridge. They formed in colluvial material derived mainly from granite and greenstone that was washed out of the Blue Ridge. Some of the soils have rock fragments on the surface. Most of the soils are on gently sloping broad ridgetops and strongly sloping to moderately steep side slopes.

3. Braddock-Thurmont-Unison

Deep, well drained soils that have a clayey or loamy subsoil; formed in colluvium

This map unit consists of broad to narrow colluvial ridges and side slopes that extend outward from the base of mountains. The ridges are gently sloping, and the side slopes are strongly sloping or moderately steep.

This map unit makes up about 8 percent of the county. It is about 32 percent Braddock soils, 18 percent Thurmont soils, and 8 percent Unison soils. Soils of minor extent make up about 42 percent.

The Braddock soils have a brown loam surface layer and a red clay subsoil. The surface layer is very stony in some areas.

The Thurmont soils have a brown loam surface layer and a yellowish red clay loam subsoil. The surface layer is very stony in some areas.

The Unison soils have a dark brown silt loam surface layer and a reddish brown clay and silty clay loam subsoil. The surface layer is very stony in some areas.

Of minor extent in this map unit, on residual uplands, are the somewhat excessively drained Ashe soils on side slopes and narrow ridgetops and the well drained Chester, Cullen, and Hayesville soils on broad to narrow ridgetops and side slopes. On alluvial or colluvial uplands are the well drained Dyke soils on old colluvial terraces and side slopes and the well drained Hiwassee soils on high stream terraces. On recent alluvial or colluvial positions are the somewhat poorly drained Belvoir soils, the well drained Starr soils, and the poorly drained Worsham soils along streams, at the heads of drainageways, and in depressions. On flood plains are the somewhat poorly drained Chewacla soils, the well drained Riverview soils, and the poorly drained Wehadkee soils.

About three-fourths of the acreage of this map unit is used for cultivated crops, hay, and pasture. Some of the acreage is in woodland, and some is in Urban land.

The gently sloping soils are well suited to cultivated crops, hay, and pasture. The strongly sloping soils are moderately well suited to cultivated crops and hay. They are well suited to pasture. The hazard of erosion, the need to increase organic matter in the surface layer, and the need to increase the fertility are major management concerns.

The soils in this map unit are well suited to trees. Potential productivity for trees ranges from moderately high to high. A few areas are managed for mixed hardwoods and pines.

This map unit is limited for nonfarm uses because of the moderately permeable clayey subsoil and moderate shrink-swell potential. These are limitations for sanitary facilities and building site development.

Upland Areas of the Piedmont

These soils are in the central and eastern parts of the survey area. They formed in residuum from granite, quartz mica schist, greenstone, sericitic schist, Triassic shale and conglomerate, arkosic sandstone, amphibolite, soapstone, granite gneiss, and limestone. Some of the soils have stones or gravel on the surface. Most of the soils are on gently sloping ridges and strongly sloping side slopes. Some of the soils are on moderately steep and steep side slopes along deeply incised drainageways and streams.

4. Hayesville-Ashe-Chester

Deep and moderately deep, well drained and somewhat excessively drained soils that have a clayey or loamy subsoil; formed in material weathered from granite and gneiss

This map unit consists of deeply dissected, broad ridgetops and side slopes on uplands. The ridgetops are gently sloping and strongly sloping, and the side slopes are moderately steep and steep.

This map unit makes up about 21 percent of the county. It is about 52 percent Hayesville soils, 23 percent Ashe soils, and 14 percent Chester soils. Soils of minor extent make up about 11 percent.

The Hayesville soils are mainly on broad ridgetops and side slopes and are deep and well drained. They have a strong brown loam surface layer and a red clay subsoil.

The Ashe soils are mostly on side slopes and narrow ridgetops and are moderately deep and somewhat excessively drained. They have a dark brown loam surface layer and a strong brown loam subsoil.

The Chester soils are on broad to narrow ridgetops and side slopes and are deep and well drained. They have a dark brown loam surface layer and a yellowish red clay loam subsoil.

Of minor extent in this map unit are the well drained Cullen soils on ridgetops and side slopes on uplands, the excessively drained Parker soils on side slopes, the well drained Braddock and Thurmont soils on colluvial ridges and side slopes, and the well drained Hiwassee and Masada soils on high stream terraces. Also of minor extent are the moderately well drained Dogue soils, the well drained McQueen soils, and the somewhat poorly drained Wahee soils on low stream terraces. The somewhat poorly drained Belvoir soils, the moderately well drained to well drained Meadowville soils, and the poorly drained Worsham soils are on foot slopes and toe slopes at the heads of drainageways and along streams. The excessively drained Buncombe soils, the somewhat poorly drained Chewacla soils, the well drained Riverview and Toccoa soils, and the poorly drained Wehadkee soils are on flood plains.

About half of the acreage of this map unit has been cleared. It is used for cropland and pasture. The rest is woodland and Urban land.

The gently sloping soils are well suited to cultivated crops, hay and pasture. The strongly sloping soils are well suited to pasture and moderately well suited to cultivated crops and hay. Major management concerns are the hazard of erosion, maintaining or increasing organic matter in the surface layer, and increasing the fertility of the soil.

The soils in this map unit are suited to trees. Potential productivity for trees is moderately high to high. The soils are managed for mixed hardwoods and pines. Erosion is a hazard along logging roads and skid trails on the steeper slopes.

This map unit is limited for nonfarm uses. The moderately permeable clayey subsoil and depth to rock are limitations for sanitary facilities and building site development.

5. Elioak-Hazel-Glenelg

Deep and moderately deep, well drained and excessively drained soils that have a clayey or loamy subsoil; formed in material weathered from quartz mica schist

This map unit consists of gently sloping and strongly sloping, narrow ridgetops and side slopes and moderately steep and steep areas adjacent to streams.

This map unit makes up about 17 percent of the county. It is about 22 percent Elioak soils, 18 percent Hazel soils, and 15 percent Glenelg soils. Soils of minor extent make up about 45 percent.

The Elioak soils are deep, well drained, and gently sloping to moderately steep. They are on the highest positions on narrow ridgetops. They have a dark brown loam surface layer and a red silty clay subsoil.

The Hazel soils are moderately deep, excessively drained, and strongly sloping to steep. They are on slopes leading down to drainageways. They have a brown loam surface layer and a brown loam subsoil.

The Glenelg soils are deep, well drained, and gently sloping to steep. They are on narrow ridgetops and side slopes. They have a dark yellowish brown loam surface layer and yellowish red silty clay loam subsoil.

Of minor extent in this map unit, on broad to narrow upland ridgetops and side slopes, are the well drained Albemarle, Cullen, Culpeper, Fauquier, and Fluvanna soils and the somewhat poorly drained to moderately well drained Orange soils. On upland side slopes and narrow ridgetops are the well drained to excessively drained Louisburg soils, the well drained to somewhat excessively drained Manor soils, and the somewhat excessively drained Watt soils. The well drained Hiwassee and Turbeville soils are on high stream terraces. The moderately well drained Dogue soils and somewhat poorly drained Wahee soils are on low stream terraces. The excessively drained Buncombe soils, the somewhat poorly drained Chewacla soils, the well drained Riverview and Toccoa soils, and the poorly drained Wehadkee soils are on flood plains.

About one-fourth of the acreage of this map unit has been cleared. It is used for cropland and pasture. Most of the rest is in woodland; a small portion is in Urban land.

The gently sloping soils are well suited to cultivated crops, hay, and pasture. The strongly sloping soils are well suited to pasture and moderately well suited to cultivated crops and hay. Major management concerns are the hazard of erosion, maintaining or increasing organic matter of the surface layer, and increasing the fertility of the soil.

The soils of this map unit are suited to trees. Potential productivity for trees is moderate to high. The soils are managed mostly for loblolly pine. Erosion is a hazard along logging roads and skid trails on the steeper slopes.

This map unit is limited for nonfarm uses. The moderately permeable clayey subsoil and the depth to rock are limitations for sanitary facilities and building site development.

6. Rabun-Myersville-Catoctin

Deep and moderately deep, well drained soils that have a clayey or loamy subsoil; formed in material weathered from greenstone

This map unit consists of a low mountain range that is gently sloping to steep. Much of the area is mountainsides facing east or west. At the base of these small mountains are gently sloping and sloping ridges and side slopes.

This map unit makes up about 15 percent of the county. It is about 40 percent Rabun soils, 22 percent Myersville soils, and 11 percent Catoctin soils. Soils of minor extent make up about 27 percent.

The Rabun soils are mainly on gently sloping to moderately steep positions but are on steep positions in small areas. These soils are on the lower positions of the mountains and at the base of the low mountains. They are deep and well drained and have a dark reddish brown clay loam or clay surface layer and a dark red clay subsoil. Some areas have a very stony surface.

The Myersville soils are on narrow ridges and side slopes leading down toward drainageways. They are gently sloping to steep. Some areas on steep slopes have a very stony surface. The Myersville soils are deep and well drained and have a brown silt loam surface layer and a yellowish red silty clay loam subsoil.

The Catoctin soils are on moderately steep and steep side slopes and sides of mountains. They are on the steepest positions in mapped areas. Some areas have a very stony surface. The Catoctin soils are moderately deep and well drained and have a dark yellowish brown silt loam surface layer and a strong brown channery silt loam subsoil.

Of minor extent in this map unit are the well drained Davidson and Fauquier soils on broad ridgetops and side slopes and the well drained Dyke and Unison soils on old colluvial ridges and side slopes. Also of minor extent are the moderately well drained to somewhat poorly drained Mount Lucas soils and well drained Starr soils in upland depressions, on concave lower slopes, and along small drainageways.

About half of the acreage of this map unit is used for cropland and pasture. The rest is in woodland.

The gently sloping soils are well suited to cultivated crops, hay, and pasture. The strongly sloping soils are moderately well suited to cultivated crops and hay and well suited to pasture. Major management concerns are the hazard of erosion, maintaining or increasing organic matter in the surface layer, and applying lime and fertilizer according to soil tests to offset the acidity and increase the fertility of the soil.

The soils in this map unit are well suited to trees. Potential productivity for trees ranges from moderate to very high. The soils are managed mostly for mixed hardwoods. Erosion is a hazard along logging roads and skid trails on the steeper slopes.

This map unit is limited for nonfarm uses. The moderately permeable, clayey subsoil and depth to rock are limitations for sanitary facilities and building site development.

7. Manteo-Nason-Tatum

Shallow and deep, somewhat excessively drained and well drained soils that have a loamy or clayey subsoil; formed in material weathered from sericite-schist

This map unit consists of wide upland ridges and side slopes. The ridges are gently sloping and strongly sloping. Some areas adjacent to streams and flood plains are moderately steep and steep.

This map unit makes up about 17 percent of the county. It is about 43 percent Manteo soils, 29 percent Nason soils, and 6 percent Tatum soils. Soils of minor extent make up about 22 percent.

The Manteo soils are mainly on moderately steep and steep side slopes. They are shallow and somewhat excessively drained. The Manteo soils have a brown channery or very channery silt loam surface layer and a yellowish brown very channery silt loam subsoil.

The Nason soils are on broad gently sloping ridges and strongly sloping and moderately steep side slopes. They are deep and well drained. The Nason soils have a yellowish brown silt loam surface layer and a yellowish red silty clay subsoil.

The Tatum soils are on gently sloping ridges and strongly sloping side slopes. They are deep and well drained. The Tatum soils have a yellowish brown silt loam surface layer and a red clay subsoil.

Of minor extent in this map unit are the well drained Cullen and Fluvanna soils and the somewhat poorly drained to moderately well drained Orange soils on upland ridges, side slopes, and broad, gently sloping, low lying areas. The well drained Hiwassee, Masada, and Turbeville soils are on high stream terraces, and the moderately well drained Dogue soils, well drained McQueen soils, and somewhat poorly drained Wahee soils are on low stream terraces. The moderately well drained to well drained Abell soils, moderately well drained to somewhat poorly drained Lignum soils, and poorly drained Worsham soils are on foot slopes and toe slopes, in upland depressions, and along small drainageways. The excessively drained Buncombe soils, somewhat poorly drained Chewacla soils, well drained Riverview and Toccoa soils, and poorly drained Wehadkee soils are on flood plains.

About one-fourth of the acreage of this map unit is used for cropland and pasture. The rest is in woodland.

Most of this map unit is poorly suited or not suited to cultivated crops and hay. Some of the gently sloping soils are well suited to cultivated crops, hay, and pasture. The strongly sloping soils are mostly not suited to cultivated crops, but some areas are moderately well suited to cultivated crops and hay and moderately well suited or well suited to pasture. Major management concerns are the hazard of erosion, maintaining or increasing organic matter in the surface layer, and increasing the fertility of the soil.

The soils in this map unit are moderately well suited to trees. Potential productivity for trees ranges from moderate to moderately high. The soils are managed mostly for loblolly pine. Erosion is a hazard along logging roads and skid trails on the steeper slopes.

This map unit is limited for nonfarm uses. The shallow depth to bedrock and the moderately permeable clayey subsoil are limitations for sanitary facilities and building site development.

8. Totier-Klinesville-Rapidan

Deep and shallow, well drained soils that have a clayey or loamy subsoil; formed in material weathered from red shale and conglomerate

This map unit consists of gently sloping to moderately steep soils on Piedmont uplands known as the Triassic Basin. Much of the area is gently sloping broad upland ridges. Side slopes leading down toward drainageways are strongly sloping or moderately steep.

This map unit makes up about 5 percent of the county. It is about 25 percent Totier soils, 15 percent Klinesville soils, and 14 percent Rapidan soils. Soils of minor extent make up about 46 percent.

The Totier soils are mainly on gently sloping broad ridgetops and strongly sloping side slopes. They are deep and have a reddish brown silt loam surface layer and a red clay subsoil.

The Klinesville soils are mainly on strongly sloping and moderately steep side slopes. They are shallow and have a reddish brown channery silt loam surface layer and a dark red very channery silt loam subsoil.

The Rapidan soils are mainly on gently sloping ridges and strongly sloping side slopes. They are deep and have a dark reddish brown silt loam surface layer and a dark red clay subsoil.

Of minor extent in this map unit are the well drained Bermudian soils and the moderately well drained Rowland soils on flood plains. The well drained to moderately well drained Manassas soils are on foot slopes, in upland depressions, and along small drainageways. The well drained Mayodan soils are on gently sloping and strongly sloping side slopes. The well drained Penn soils are mostly on strongly sloping and moderately steep areas between areas of Totier and Klinesville soils. The moderately well drained and somewhat poorly drained Creedmoor soils are on upland flats, along drainageways, and on toe slopes.

More than three-fourths of the acreage of this map unit is used for cropland and pasture. The rest is in woodland.

The gently sloping soils are well suited to cultivated crops, hay, and pasture. The strongly sloping soils are moderately well suited to cultivated crops and hay and well suited to pasture. Major management concerns are the hazard of erosion, maintaining or increasing organic matter in the surface layer, and increasing fertility of the soil.

The soils in this map unit are suited to trees. Potential productivity for trees is moderate or high. The soils are managed for mixed hardwoods and pines. Erosion is a hazard along logging roads and skid trails on the steeper slopes.

This map unit is limited for nonfarm uses. The moderately permeable, clayey subsoil and the depth to rock are limitations for sanitary facilities and building site development.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Hayesville loam, 2 to 7 percent slopes, is one of several phases in the Hayesville series.

Some map units are made up of two or more major soils. These map units are called soil complexes, soil associations, or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Myersville-Catoctin very stony silt loams, 7 to 15 percent slopes, is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarry is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

1B—Abell silt loam, 2 to 7 percent slopes. This deep, gently sloping, moderately well drained soil is along drainageways, on foot slopes, and in depressions. Slopes commonly are slightly concave and about 200 to 500 feet long. Areas of this soil are long and narrow and range from 3 to about 15 acres.

Typically, the surface layer of this soil is dark grayish brown and light yellowish brown silt loam about 12 inches thick. The subsoil is about 24 inches thick. It is mostly yellowish brown clay loam and has gray mottles below a depth of about 28 inches. Commonly, a thin gravel line is in the lower part of the subsoil. The substratum, to a depth of 60 inches or more, is multicolored loam and weathered bedrock.

Included with this soil in mapping are small areas of moderately well drained to somewhat poorly drained Lignum soils and poorly drained Worsham soils. The Lignum and Worsham soils are along drainageways and in depressions. Also included are small areas of soils that have a gravelly surface layer. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 36 inches or more. The natural fertility and the organic matter content are low. This soil commonly is strongly acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 2 to 3 1/2 feet during winter and early in spring.

Most areas of this soil are used for pasture or woodland. Some areas are cultivated.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The soil is wet and cold in spring, and wetness commonly interferes with tillage. In places, crops are damaged by ponded water after heavy rains. Drainage and control of ponded water help to alleviate wetness and crop damage. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and damages the stand of grasses and legumes.

Potential productivity for trees on this soil is high, especially for loblolly pine, yellow-poplar, and black walnut. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The seasonal high water table, low strength, and moderate shrink-swell potential are the main limitations for nonfarm uses. The seasonal high water table limits use of the soil as a building site, as a site for sanitary landfills, and for septic tank absorption fields. Low strength limits use of the soil for local roads and streets. The low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IIw.

2B—Albemarle fine sandy loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on convex ridgetops that are about 200 to 800 feet wide. Areas of this soil commonly are long and winding. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is very dark grayish brown and brownish yellow fine sandy loam about 5 inches thick. The subsoil is mostly strong brown and yellowish red clay loam about 25 inches thick. The substratum is mostly yellowish brown, light gray, and yellow sandy loam. Hard rock is at a depth of 50 inches.

Included with this soil in mapping are small areas of well drained Culpeper and Elioak soils, excessively drained Hazel soils, and well drained to excessively drained Louisburg soils. The Culpeper and Elioak soils are mainly on broad, flat ridges but can be on other positions. The Hazel and Louisburg soils are mainly on the points of ridges and on side slopes. Also included are small areas of soils that have a gravelly surface layer and severely eroded soils that have a surface layer of yellowish red clay loam. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. Natural fertility and organic matter content are low. This soil is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to bedrock is 40 to 60 inches or more.

Most areas of this soil are in woodland. Some areas are farmed.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The depth to bedrock and the moderately permeable subsoil are the main limitations for nonfarm uses. The depth to bedrock and seepage limit use of the soil for most sanitary facilities. Seepage is a limitation for sewage lagoons and sanitary landfills. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

2C—Albemarle fine sandy loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex ridgetops and side slopes that are about 100 to 500 feet wide. Areas of this soil commonly are long and winding. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is very dark grayish brown and brownish yellow fine sandy loam about 5 inches thick. The subsoil is mostly strong brown and yellowish red clay loam about 25 inches thick. The substratum is mostly yellowish brown, gray, and yellow sandy loam. Hard rock is at a depth of 50 inches.

Included with this soil in mapping are small areas of well drained Culpeper and Glenelg soils, excessively drained Hazel soils, and well drained to excessively drained Louisburg soils. The Culpeper and Elioak soils are mainly on the less steep positions but can also be on other positions. The Hazel and Louisburg soils are mainly on the points of ridges and on side slopes. Also included are small areas of soils that have a gravelly surface layer and severely eroded soils that have a surface layer of yellowish red clay loam. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable and is easily tilled. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. Natural fertility and organic matter content are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to bedrock is 40 to 60 inches.

Most areas of this soil are in woodland. Some areas are farmed.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The slope, depth to bedrock, and the moderately permeable subsoil are the main limitations for nonfarm uses. Depth to bedrock and the slope limit use of the soil as a building site. The slope, depth to bedrock, and seepage limit use of the soil for sanitary facilities. The low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IIIe.

2D—Albemarle fine sandy loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on side slopes that are about 100 to 500 feet wide. Areas of this soil commonly are long and winding. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is very dark grayish brown and brownish yellow fine sandy loam about 5 inches thick. The subsoil is mostly strong brown and yellowish red clay loam about 25 inches thick. The substratum is mostly yellowish brown, light gray, and yellow sandy loam. Hard rock is at a depth of 50 inches.

Included with this soil in mapping are small areas of well drained Culpeper and Glenelg soils, excessively drained Hazel soils, and well drained to excessively drained Louisburg soils. The Culpeper and Glenelg soils are on landscape positions similar to this Albemarle soil. The Hazel and Louisburg soils are mainly on the steeper positions. Also included are small areas of soils that have a gravelly surface layer and severely eroded soils that have a surface layer of yellowish red clay loam. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable and is easily tilled. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. Natural fertility and the organic matter content are low. This soil commonly is strongly acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to bedrock is more than 40 inches.

Most areas of this soil are in woodland. Some areas are farmed.

This soil is poorly suited to cultivated crops. The severe erosion hazard is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The slope and depth to bedrock are the main limitations for nonfarm uses. The slope limits use of the soil as a building site. The slope, depth to rock, and seepage limit use of the soil for sanitary facilities. The low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IVe.

3C—Albemarle very stony fine sandy loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex ridgetops and side slopes that are about 200 to 500 feet wide. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil commonly are long and winding. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is very dark grayish brown and brownish yellow fine sandy loam about 5 inches thick. The subsoil is mostly strong brown and yellowish red clay loam about 25 inches thick. The substratum is mostly yellowish brown, light gray, and yellow sandy loam. Hard rock is at a depth of 50 inches.

Included with this soil in mapping are small areas of well drained Culpeper soils, excessively drained Hazel soils, and well drained to excessively drained Louisburg soils. The Culpeper soils are mainly on the less steep positions. The Hazel and Louisburg soils are mainly on points of ridges and the steeper side slopes. Also included are small areas of soils that do not have stones on the surface and soils that have slopes of less than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. Natural fertility and organic matter content are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to bedrock is more than 40 inches.

Most areas of this soil are in woodland. Some areas are in permanent pasture.

This soil is not suited to cultivated crops. The stones on the surface make use of tillage equipment impractical.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virgina pine, yellow-poplar, and oaks do well on this soil.

Low strength, slope, depth to bedrock, and a moderately permeable subsoil are the main limitations for nonfarm uses. The low strength, slope, and depth to bedrock limit use of the soil as a building site. The slope, depth to bedrock, and seepage limit its use for sanitary facilities. The low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIs.

3D—Albemarle very stony fine sandy loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on side slopes that are about 200 to 500 feet wide. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil commonly are long and winding. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is very dark grayish brown and brownish yellow fine sandy loam about 5 inches thick. The subsoil is mostly strong brown and yellowish red clay loam about 25 inches thick. The substratum is mostly yellowish brown, light gray, and yellow sandy loam. Hard rock is at a depth of 50 inches.

Included with this soil in mapping are small areas of well drained Culpeper soils, excessively drained Hazel soils, and well drained to excessively drained Louisburg soils. The Culpeper soils are mainly on the steeper positions. The Hazel and Louisburg soils are mainly on the less steep positions. Also included are small areas of soils that do not have stones on the surface and soils that have slopes of more than 25 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and the natural fertility are low. The soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to bedrock is more than 40 inches.

Most areas of this soil are in woodland. Some areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of equipment impractical.

This soil is moderately well suited to pasture. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

Slope, depth to rock, and a moderately permeable subsoil are the main limitations for nonfarm uses. Slope limits use of the soil as a building site. The slope, depth to bedrock, and seepage limit its use for sanitary facilities. Low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIs.

3E—Albemarle very stony fine sandy loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on side slopes that are about 200 to 500 feet wide. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil commonly are long and winding. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is very dark grayish brown and brownish yellow fine sandy loam about 5 inches thick. The subsoil is mostly strong brown and yellowish red clay loam about 25 inches thick. The substratum is mostly yellowish brown, light gray, and yellow sandy loam. Hard rock is at a depth of 50 inches.

Included with this soil in mapping are small areas of excessively drained Hazel soils and well drained to excessively drained Louisburg soils. The Hazel and Louisburg soils are on the same landscape positions as this Albemarle soil. Also included are small areas of soils that do not have stones on the surface and soils that have slopes of less than 25 percent. Included soils make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to bedrock is more than 40 inches.

Most areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface and steep slopes make the use of equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

Slope, depth to bedrock, and a moderately permeable subsoil are the main limitations for nonfarm uses. The slope limits use of the soil as a building site. The slope, depth to bedrock, and seepage limit its use for sanitary facilities. Slope and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIIs.

4B—Ashe loam, 2 to 7 percent slopes. This moderately deep, gently sloping, somewhat excessively drained soil is on convex ridgetops and on points of ridges. Areas of this soil are irregularly oblong. They range from 5 to about 15 acres.

Typically, the surface layer of this soil is dark brown and brown loam about 10 inches thick. The subsoil is strong brown loam about 9 inches thick. The substratum is multicolored brown, yellow, white, and black partially weathered bedrock that crushes to sandy loam to a depth of about 50 inches. Bedrock is at a depth of 50 inches.

Included with this soil in mapping are small areas of well drained Chester and Porters soils. These soils are scattered throughout the mapped area. Also included are small areas of soils that have a very gravelly or very stony surface layer and areas that have outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability of this soil is moderately rapid, and available water capacity is low. Surface runoff is medium. The hazard of erosion is moderate. The surface layer is friable, and tilth is fair through a wide range of soil moisture. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 30 inches. The organic matter content is low to moderate, and natural fertility is low. The soil is strongly acid or very strongly acid throughout, but reaction is variable because of local liming. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland or in pasture.

This soil is moderately well suited to cultivated crops. The soil is droughty during the growing season, and response to lime and fertilizer is limited by the low available water capacity. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

The moderately rapid permeability and the depth to bedrock are the main limitations for nonfarm uses. These limit use of the soil as a building site and as a site for sanitary facilities. Slope is a limitation for playgrounds. The soil is a poor source of roadfill.

This soil is in capability subclass IIIe.

4C—Ashe loam, 7 to 15 percent slopes. This moderately deep, strongly sloping, somewhat excessively drained soil is on convex ridgetops, on points of ridges, and on side slopes. Areas of this soil are irregularly oblong. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark brown and brown loam about 10 inches thick. The subsoil is strong brown loam about 9 inches thick. The substratum is multicolored brown, yellow, white, and black partially weathered bedrock that crushes to sandy loam to a depth of about 50 inches. Bedrock is at a depth of 50 inches.

Included with this soil in mapping are small areas of well drained Chester and Porters soils and excessively drained Parker soils. These soils are scattered throughout the mapped area. Also included are small areas of soils that have a very gravelly or very stony surface layer and areas that have outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability of this soil is moderately rapid, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable, and tilth is fair through a wide range of soil moisture. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 30 inches. The organic matter content is low to moderate, and the natural fertility is low. This soil is strongly acid or very strongly acid throughout, but reaction is variable because of local liming. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland or pasture.

This soil is poorly suited to cultivated crops. It is droughty during the growing season, and response to lime and fertilizer is limited by the low available water capacity. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Slope, moderately rapid permeability, and depth to bedrock are the main limitations for nonfarm uses. These limit the use of the soil as a building site and as a site for sanitary facilities. Slope is a limitation for recreational areas. This soil is a poor source of roadfill.

This soil is in capability subclass IVe.

4D—Ashe loam, 15 to 25 percent slopes. This moderately deep, moderately steep, somewhat excessively drained soil is on narrow convex ridgetops, on points of ridges, and on side slopes. Areas of this soil are slightly elongated or wide and winding. They range from 10 to about 50 acres.

Typically, the surface layer of this soil is dark brown and brown loam about 10 inches thick. The subsoil is strong brown loam about 9 inches thick. The substratum is multicolored brown, yellow, white, and black partially weathered bedrock that crushes to sandy loam to a depth of about 50 inches. Bedrock is at a depth of about 50 inches.

Included with this soil in mapping are small areas of well drained Chester and Porters soils and excessively drained Parker soils. These soils are scattered throughout the mapped area. Also included are small areas of soils that have a very gravelly or very stony surface layer and areas that have outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability of this soil is moderately rapid, and the available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 30 inches. The organic matter content is low to moderate, and natural fertility is low. This soil is strongly acid or very strongly acid throughout, but reaction is variable because of local liming. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland or pasture.

This soil is not suited to cultivated crops. It is droughty during the growing season, and response to lime and fertilizer is limited by the low available water capacity.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

Slope, moderately rapid permeability, and depth to rock are the main limitations for nonfarm uses. These limit the use of the soil as a building site and as a site for most sanitary facilities. Slope is a limitation for recreational development. The soil is a poor source of roadfill.

This soil is in capability subclass VIe.

4E—Ashe loam, 25 to 45 percent slopes. This moderately deep, steep, somewhat excessively drained soil is on points of ridges and on side slopes. Areas of this soil are slightly elongated or wide and winding. They range from 15 to about 100 acres.

Typically, the surface layer of this soil is dark brown and brown loam about 10 inches thick. The subsoil is strong brown loam about 9 inches thick. The substratum is multicolored brown, yellow, white, and black partially weathered bedrock that crushes to sandy loam to a depth of about 50 inches. Bedrock is at a depth of 50 inches.

Included with this soil in mapping are small scattered areas of well drained Chester and Porters soils and excessively drained Parker soils. Also included are small areas of soils that have a very gravelly or very stony surface layer and areas that have outcrops of rock. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability of this soil is moderately rapid, and available water capacity is low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 30 inches. The organic matter content is low to moderate, and the natural fertility is low. This soil is strongly acid or very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay or cultivated crops. Steep slopes make use of modern tillage equipment impractical. The soil is droughty during the growing season.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. Slope limits safe operation of heavy equipment.

Slope and depth to rock are the main limitations for nonfarm uses. These limit use of the soil as a building site and as a site for most sanitary facilities. Slope is a limitation for recreational development. This soil is a poor source of roadfill.

This soil is in capability subclass VIIe.

5B—Belvoir loam, 2 to 7 percent slopes. This deep, gently sloping, somewhat poorly drained soil is on saddles, in depressions, on foot slopes, and along small drainageways. Areas of this soil are elongated, irregularly oval, or rectangular. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark grayish brown and light yellowish brown loam about 12 inches thick. The upper part of the subsoil is brownish yellow loam about 7 inches thick with light brownish gray mottles. Next is a brittle, compact fragipan of brownish yellow sandy loam that is about 6 inches thick and has light brownish gray mottles. The lower 20 inches of the subsoil is yellowish brown clay loam that has light gray mottles. The substratum is gray, reddish yellow, and yellowish brown clay and clay loam to a depth of 72 inches or more.

Included with this soil in mapping are small areas of well drained to moderately well drained Meadowville soils, well drained Thurmont soils, and poorly drained Worsham soils. The Meadowville and Thurmont soils are on the higher positions. The Worsham soils are along small drainageways and on toe slopes. Also included are small areas of soils that do not have a fragipan and soils that have slopes of more than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability of this soil is slow, and available water capacity is moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of about 25 inches, where root growth is severely restricted by the brittle compact layer. The organic matter content and natural fertility are low. The surface layer and subsoil commonly are strongly acid or very strongly acid, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 1 foot to 2 feet during winter and early in spring. Depth to bedrock is more than 5 feet.

Most areas of this soil are in woodland or pasture.

This soil is moderately well suited to cultivated crops. Deep-rooted crops commonly are stunted or short lived because of the restricted rooting depth. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, yellow-poplar, sweetgum, and oaks do moderately well on this soil. The soil is soft when wet, limiting the use of heavy equipment. Windthrow causes some losses when the soil is wet because of the limited rooting depth above the brittle compact layer.

The shallow depth to the seasonal high water table and the slowly permeable subsoil are the main limitations for nonfarm uses. The seasonal high water table limits use of the soil as a site for most sanitary facilities. Many of the areas dry out slowly in spring and after heavy rains. The slowly permeable subsoil limits use of the soil for septic tank absorption fields and picnic areas. The soil is a fair source of roadfill.

This soil is in capability subclass IIIw.

6—Bermudian silt loam. This deep, nearly level, well drained soil is on flood plains along the rivers and large streams. Areas of this soil commonly are elongated and along the course of the adjacent stream. They range from about 5 to 30 acres.

Typically, the surface layer is dark reddish brown silt loam about 4 inches thick. The subsoil is 41 inches thick. The upper 35 inches is dark reddish brown and reddish brown silt loam and silty clay loam. The lower 6 inches of the subsoil is reddish brown clay loam and sandy clay loam. The substratum to a depth of 60 inches is yellowish red extremely gravelly silt loam.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of well drained to moderately well drained Manassas soils, moderately well drained to somewhat poorly drained Rowland soils, and poorly drained Wehadkee soils. The Manassas soils are on the higher positions, generally away from the stream, and on foot slopes. The Rowland and Wahadkee soils are in depressions and on flats generally away from the adjacent stream or river at the base of upland side slopes. Also included in abandoned stream channels are small areas of soil that have a very gravelly surface. Included soils make up about 15 percent of mapped areas.

Permeability of this soil is moderate to moderately rapid, and available water capacity is moderate. Runoff is slow, and the hazard of erosion is slight. This soil has good tilth. The natural fertility is medium, and the organic matter content is moderate. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 60 inches. The surface layer and subsoil commonly are medium acid, unless lime has been applied. Bedrock is generally at a depth of more than 5 feet and is not usually a factor in the use of this soil. During winter and early in spring the soil is occasionally flooded for brief periods and the seasonal high water table is between depths of 3 and 6 feet.

Many areas of this soil are in cultivated cropland. Some areas are in hay or pasture.

This soil is well suited to cultivated crops. The hazard of erosion is slight and is not a major management concern. Management concerns are the need to increase organic matter content and the use of lime and fertilizer according to soil tests. If this soil is cultivated, conservation tillage, use of cover crops, and including grasses and legumes in the cropping system increase the organic matter content and help to maintain tilth. Crop residue should be kept on or near the surface.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management.

Potential productivity for trees on this soil is very high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well on this soil.

The flooding is a main limitation for nonfarm uses of this soil. It limits the use of the soil for most sanitary facilities, building sites, and recreational areas. The low strength and excess fines limit the soil as a source of roadfill.

This soil is in capability class I.

7B—Braddock loam, 2 to 7 percent slopes. This soil is deep, gently sloping, and well drained. It is on narrow to broad convex ridgetops. Areas of this soil are 100 to 500 feet wide and are elongated along the ridge or are highly variable in shape. They range from about 10 to 25 acres.

Typically, the surface layer of this soil is brown loam about 8 inches thick. The subsoil is about 52 inches thick. It is yellowish red clay loam and red clay in the upper part and below that, between depths of 40 and 60 inches, is red clay loam with strong brown mottles.

Included with this soil in mapping are small areas of well drained Hayesville and Thurmont soils and moderately well drained to well drained Meadowville soils. The Hayesville and Thurmont soils commonly are intermingled on the same landscape positions as this Braddock soil. The Meadowville soils are in shallow depressions and along drainageways. Also included are small areas of soils that have slopes of more than 7 percent and severely eroded soils that have a clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has fair tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. The soil commonly is very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. A few areas are in permanent pasture or woodland.

This soil is well suited to cultivated crops (fig. 2). When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops and grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It also reduces crusting and improves soil-seed contact.

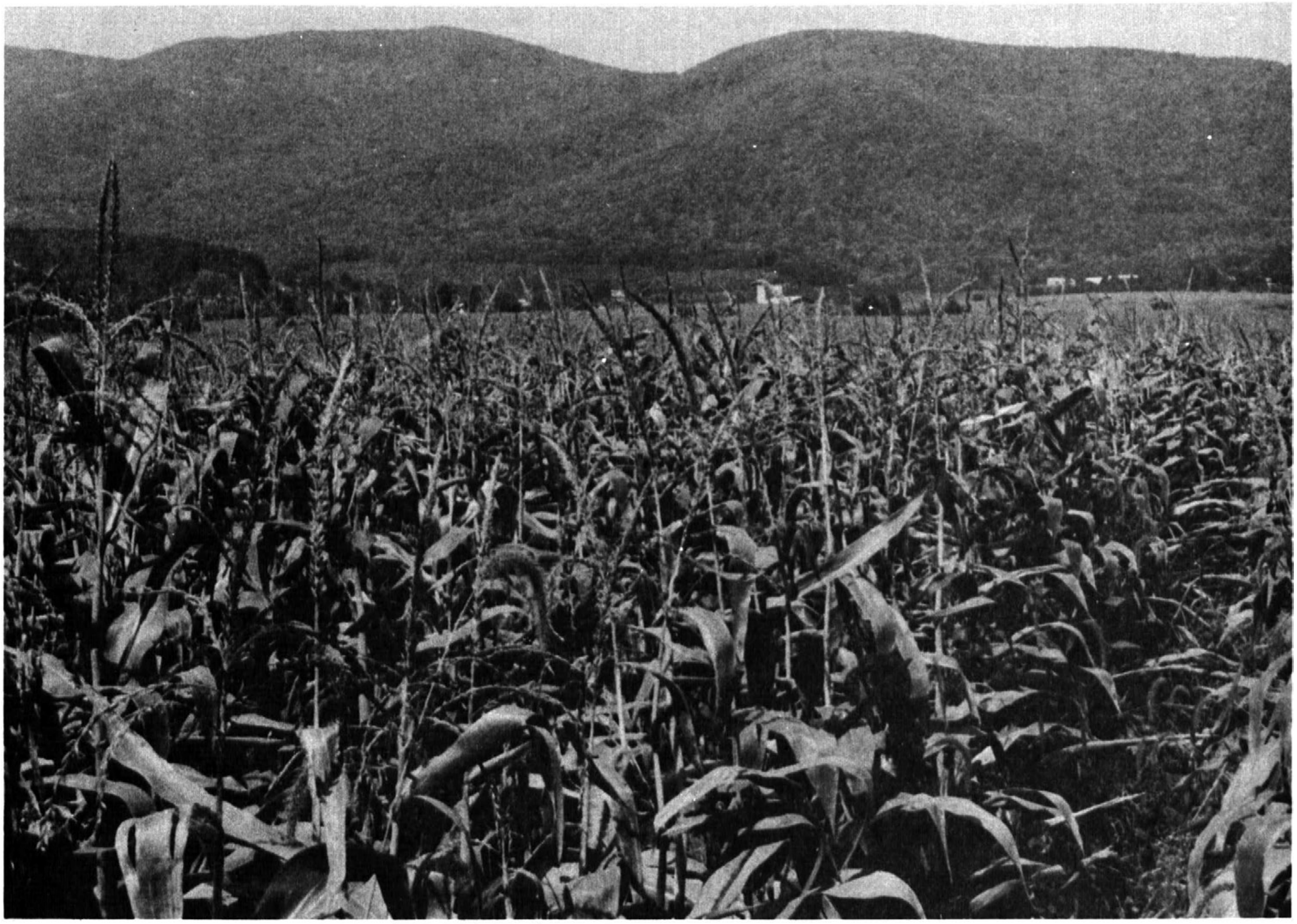

Figure 2.—Corn on Braddock loam, 2 to 7 percent slopes, in foreground. Catoctin, Lew, and Myersville soils on the mountain slopes in background.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The moderately permeable clayey subsoil and seepage are limitations for sanitary facilities. The clayey subsoil and shrink-swell potential are limitations for most building sites. This soil is well suited to lawns, landscaping, and golf fairways. It is well suited to recreational development. Slope limits its use for playgrounds. Low strength and excess fines limit its use as a source of roadfill. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIe.

7C—Braddock loam, 7 to 15 percent slopes. This soil is deep, strongly sloping, and well drained. It commonly is on side slopes that border small drainageways. Areas of this soil are 100 to 500 feet wide and are irregularly elongated along the drainageways. They range from about 10 to 20 acres.

Typically, the surface layer of this soil is brown loam about 8 inches thick. The subsoil is about 52 inches thick. It is yellowish red clay loam and red clay in the upper part. The lower part of the subsoil between depths of 40 and 60 inches is red clay loam that has strong brown mottles.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, well drained Hayesville and Thurmont soils, and well drained to moderately well drained Meadowville soils. The Ashe, Hayesville, and Thurmont soils are commonly intermingled and on the same landscape positions as this Braddock soil. The Meadowville soils are on the less sloping positions along drainageways and in depressions. Also included are small areas of Braddock soils that have slopes of more than 15 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable and easily tilled when moist, but it breaks up into clods if tilled when too wet. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and natural fertility is medium. This soil is commonly very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. Some areas are in permanent pasture or woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops and grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It also reduces crusting and improves soil-seed contact.

This soil is well suited to pasture and hay crops (fig. 3). Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is poorly suited to most community development. The moderately permeable clayey subsoil and seepage are limitations for sanitary facilities. The clayey subsoil and shrink-swell potential are limitations for most building sites. This soil is fairly well suited to lawns, landscaping, and golf fairways. It is well suited to recreational development. Low strength and excess fines limit its use as a source of roadfill. Slope limits its use for playgrounds. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIIe.

7D—Braddock loam, 15 to 25 percent slopes. This soil is deep, moderately steep, and well drained. It is on narrow convex side slopes and along drainageways. Areas of this soil are generally 200 to 400 feet wide and are highly variable in shape. They range from about 5 to 25 acres.

Typically, the surface layer of this soil is brown loam about 6 inches thick. The subsoil is about 52 inches thick. It is red and yellowish red clay and clay loam. The lower part of the subsoil is mottled in some pedons.

Included with this soil in mapping are small areas of well drained Chester, Hayesville, and Thurmont soils. The Chester and Thurmont soils commonly are intermingled and on the same landscape positions as this Braddock soil. The Hayesville soils are along the lower part of the side slopes. Also included are small areas of severely eroded soils and small areas of soils that are less than 40 inches thick. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable and easily tilled when moist, but it breaks up into clods if tilled when too wet or too dry. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is moderate. This soil is commonly very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in permanent pasture or woodland. A few areas are being farmed.

This soil is poorly suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops and grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain the organic matter content, and control erosion. They also improve tilth, infiltration, and fertility, reduce crusting, and improve soil-seed contact.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

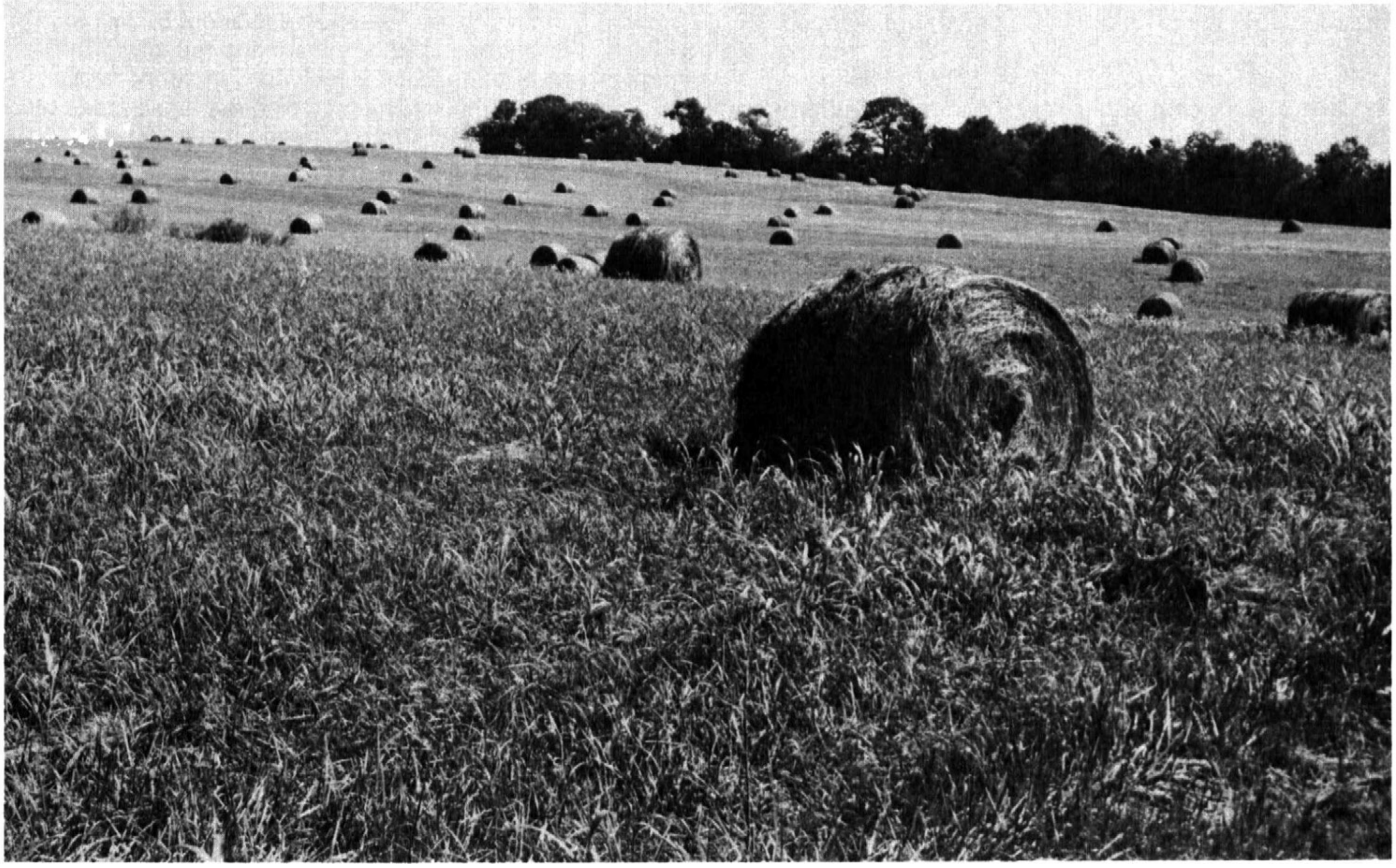

Figure 3.—Round bales of fescue hay in an area of Braddock loam, 7 to 15 percent slopes. The grass vegetation helps reduce runoff and erosion on this strongly sloping soil.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Slope and erosion are the major hazards or limitations to the growing and harvesting of trees.

This soil is poorly suited to most community development. Slope, moderately permeable clayey subsoil, and seepage are limitations for sanitary facilities. The clayey subsoil and shrink-swell potential are limitations for most building sites. Because of slope, this soil is poorly suited to lawns, landscaping, and golf fairways. It is poorly suited to most recreational development. Slope limits its use for playgrounds. Low strength and excess fines limit the use of this soil as a source of roadfill. This soil is fair for use as openland wildlife habitat and good for use as woodland wildlife habitat.

This soil is in capability subclass IVe.

8C3—Braddock clay loam, 7 to 15 percent slopes, severely eroded. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and medium to short side slopes. Areas of this soil are 100 to 400 feet wide and are irregularly elongated along the ridge. They range from about 10 to 20 acres.

Typically, the surface layer of this soil is yellowish red clay loam about 4 inches thick. The subsoil is about 48 inches thick. It is red clay and clay loam. The lower part of the subsoil is mottled in some pedons.

Included with this soil in mapping are small areas of well drained Hayesville and Thurmont soils and moderately well drained to well drained Meadowville soils. The Hayesville and Thurmont soils commonly are intermingled and on the same landscape positions as this Braddock soil. The Meadowville soils are in shallow depressions and along drainageways. Also included are small areas of soils that are less than 40 inches thick. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe, and past erosion has reduced the range of moisture content for good workability. The surface layer is friable when moist, but it breaks up into clods if tilled when too wet. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low and natural fertility is medium. This soil commonly is very strongly acid or strongly acid, unless limed. Bedrock generally is at a depth of more than 60 inches.

Many areas of this soil are farmed. Some areas are in permanent pasture or woodland.

This soil is poorly suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It also reduces crusting and improves soil-seed contact.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The moderately permeable, clayey subsoil and seepage are limitations for sanitary facilities. The clayey subsoil and shrink-swell potential are limitations for most building sites. This soil is suited to lawns, landscaping, and golf fairways. Low strength and excess fines limit its use as a source of roadfill. Slope limits its use as playgrounds. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

9B—Braddock very stony loam, 2 to 7 percent slopes. This soil is deep, gently sloping, and well drained. It is on narrow to broad convex ridgetops. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are 100 to 400 feet wide and are elongated along the ridge or are highly variable in shape. They range from about 5 to 20 acres.

Typically, the surface layer of this soil is brown loam about 8 inches thick. The subsoil is about 52 inches thick. It is yellowish red clay loam and red clay. The lower part of the subsoil is mottled with strong brown.

Included with this soil in mapping are small areas of well drained Hayesville and Thurmont soils. The Hayesville and Thurmont soils commonly are intermingled and on the same landscape positions as this Braddock soil. Also included are small areas of Braddock soils that have slopes of more than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of tillage equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The moderately permeable, clayey subsoil and seepage are limitations for sanitary facilities. The clayey subsoil is a limitation for most building sites. The stones on the surface are limitations for lawns, landscaping, and golf fairways. Low strength and excess fines limit the use of this soil as a source of roadfill. Stoniness limits its use as playgrounds. This soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIs.

9C—Braddock very stony loam, 7 to 15 percent slopes. This soil is deep, strongly sloping, and well drained. It is on narrow convex ridgetops and side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are 100 to 400 feet wide and are elongated along the ridge or highly variable in shape. They range from 10 to 20 acres.

Typically, the surface layer of this soil is brown loam about 8 inches thick. The subsoil is about 52 inches thick. It is yellowish red clay loam and red clay. The lower part of the subsoil is mottled with strong brown.

Included with this soil in mapping are small areas of well drained Hayesville and Thurmont soils that commonly are intermingled and on the same landscape positions as this Braddock soil. Some areas of soils have bedrock at a depth of less than 40 inches. Also included are small areas of Braddock soils that have slopes of more than 15 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. The soil commonly is very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to hay and cultivated crops. The stones on the surface make use of tillage equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The moderately permeable, clayey subsoil and seepage are limitations for sanitary facilities. The clayey subsoil is a limitation for most building sites. The stones on the surface are limitations for lawns, landscaping, and golf fairways. Low strength and excess fines limit the use of this soil as a source of roadfill. Stoniness limits its use as playgrounds. This soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIs.

9D—Braddock very stony loam, 15 to 25 percent slopes. This soil is deep, moderately steep, and well drained. It is on convex side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are 100 to 400 feet wide and are elongated along the drainage pattern. They range from 10 to about 20 acres.

Typically, the surface layer of this soil is brown loam about 8 inches thick. The subsoil is about 52 inches thick. It is yellowish red clay loam and red clay. The lower part of the subsoil is mottled with strong brown.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils and well drained Hayesville and Thurmont soils. The Ashe soils are on the steeper positions and near outcrops of rock. The Hayesville and Thurmont soils commonly are intermingled and on the same landscape positions as this Braddock soil. Also included are small areas of Braddock soils that have slopes of less than 15 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make use of tillage equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The moderately permeable, clayey subsoil and seepage are limitations for sanitary facilities. The clayey subsoil is a limitation for most building sites. The stones on the surface are limitations for lawns, landscaping, and golf fairways. Low strength and excess fines limit the use of this soil as a source of roadfill. Stoniness limits its use as playgrounds. This soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIs.

10—Buncombe loamy sand. This deep, nearly level, excessively drained soil is on flood plains along streams and large drainageways. Areas of this low-lying soil commonly are long and narrow. They range from 3 to about 20 acres. Slopes range from 0 to 2 percent.

Typically, the surface layer of this soil is dark yellowish brown loamy sand about 10 inches thick. The substratum to a depth of 60 inches is mostly brown sand and dark yellowish brown loamy sand.

Included with this soil in mapping are small areas of somewhat poorly drained Chewacla soils and well drained Riverview and Toccoa soils. The Chewacla soils are on slightly lower positions, mainly in that part of the map unit farthest from the stream. The Riverview and Toccoa soils are throughout the mapped area. Also included are small areas of gravelly soils. Included soils make up about 15 percent of mapped areas.

Permeability is rapid or very rapid, and available water capacity is low. Surface runoff is slow. The hazard of erosion is slight. This soil has good tilth. The substratum has low shrink-swell potential. The root zone extends to a depth of 60 inches or more. The organic matter content and natural fertility are low. This soil is commonly medium acid or strongly acid throughout, but reaction of the surface layer is variable because of local liming. Flooding is frequent for brief periods during the winter and spring.

Most areas of this soil are in pasture. Some areas are in woodland, and a few areas are farmed.

This soil is poorly suited to cultivated crops. The response of crops to lime and fertilizer that are applied according to soil tests is limited by the droughtiness of the soil. If the soil is not protected from flooding, crops are damaged by brief flooding during spring on an average of once every 2 years. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, control of flooding, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is high, especially for loblolly pine, American sycamore, yellow-poplar, and sweetgum. Seeds and seedlings survive and grow well if competing vegetation is controlled. The soil is soft, and the use of heavy equipment is limited.

Flooding, rapid permeability, and a sandy substratum are the main limitations for nonfarm uses. Flooding prevents use of the soil as a building site. Flooding, the rapid permeability, and the sandy substratum limit its use as a site for most sanitary facilities. The sandy substratum limits excavations. Flooding and the sandy substratum limit use of the soil for recreational areas. This soil is good as a source of roadfill.

This soil is in capability subclass IVw.

11D—Cataska-Hartleton very stony loams, 15 to 25 percent slopes. This complex consists of moderately steep, excessively drained and well drained, moderately deep and deep soils on side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 300 to 600 feet long. Areas of this complex are along the mountain ranges and are long and winding. They range from 20 to 50 acres or more.

This complex is about 60 percent Cataska soils and 30 percent Hartleton soils. Other soils make up the rest. The areas of individual soils are so small or so intermingled that to separate them in mapping was not practical.

Typically, the surface layer of the Cataska soil is very dark grayish brown and brown channery loam about 5 inches thick. The subsoil is yellowish brown very channery silt loam about 15 inches thick. The substratum is about 18 inches thick. It is 90 percent phyllite and shale fragments coated with yellowish brown loam. Hard phyllite and shale are at a depth of 38 inches.

Typically, the surface layer of the Hartleton soil is yellowish brown channery loam about 7 inches thick. The subsoil is yellowish brown and brownish yellow channery and very channery loam about 25 inches thick. The substratum is about 12 inches thick. It is brownish yellow extremely channery loam. Hard phyllite and shale are at a depth of 44 inches.

Included with these soils in mapping are small areas, generally less than 3 acres in size, of well drained Tusquitee soils. The Tusquitee soils are along small streams and in valleys. Also included are small areas of soils that have an extremely stony surface layer, areas that have outcrops of rock, and small areas that do not have stones on the surface. The included soils and outcrops make up about 10 percent of mapped areas.

Permeability is moderately rapid or rapid in the Cataska soil and moderate or moderately rapid in the Hartleton soil. The available water capacity is low for the Cataska soil and moderate for the Hartleton soil. Surface runoff is rapid. The hazard of erosion is severe. The natural fertility and organic matter content are low. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 20 inches in the Cataska soil and to more than 30 inches in the Hartleton soil. The surface layer and subsoil are commonly very strongly acid or strongly acid, unless limed.

Most areas of this complex are in woodland.

This complex is not suited to hay and cultivated crops. Large stones on the surface make use of modern tillage equipment impractical. The soils are droughty during the growing season. The hazard of erosion is a major management concern.

This complex is poorly suited to pasture crops. Maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, addition of lime and fertilizer according to soil tests, and controlled grazing are useful in pasture management.

Potential productivity for trees is low for the Cataska soil and moderately high for the Hartleton soil. The soils are managed mostly for pine. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits the safe operation of heavy equipment.

Depth to bedrock and slope are the main limitations for nonfarm uses of this complex.

This complex is in capability subclass VIIs.

11E—Cataska-Hartleton very stony loams, 25 to 60 percent slopes. This complex consists of steep to very steep, excessively drained and well drained, moderately deep and deep soils on side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 500 to 1,000 feet long. Areas of this complex are along the mountain ranges and are long and winding. They range from 20 to about 100 acres.

This complex is about 60 percent Cataska soils and 30 percent Hartleton soils. Other soils make up the rest. The areas of individual soils are so small or so intermingled that to separate them in mapping was not practical.

Typically, the surface layer of the Cataska soil is very dark grayish brown and brown channery loam about 5 inches thick. The subsoil is yellowish brown, friable very channery silt loam about 15 inches thick. The substratum is about 18 inches thick. It is 90 percent phyllite and shale fragments coated with yellowish brown silt loam. Hard phyllite and shale are at a depth of 38 inches.

Typically, the surface layer of the Hartleton soil is yellowish brown channery loam about 7 inches thick. The subsoil is yellowish brown and brownish yellow channery and very channery loam about 25 inches thick. The substratum is about 12 inches thick. It is brownish yellow extremely channery loam. Hard phyllite and shale are at a depth of 44 inches.

Included with these soils in mapping are small areas, generally less than 3 acres in size, of well drained Tusquitee soils. The Tusquitee soils are along small streams and in valleys. Also included are small areas of soils that have an extremely stony surface layer, areas that have outcrops of rock, and small areas that do not have stones on the surface. The included soils and outcrops make up about 10 percent of mapped areas.

Permeability is moderately rapid or rapid in the Cataska soil and moderate or moderately rapid in the Hartleton soil. The available water capacity is very low for the Cataska soil and moderate for the Hartleton soil. Surface runoff is very rapid. The hazard of erosion is very severe. The natural fertility and organic matter content are low. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 20 inches in the Cataska soil and to more than 30 inches in the Hartleton soil. The surface layer and subsoil are commonly very strongly acid or strongly acid, unless limed.

Most areas of this complex are in woodland.

This complex is not suited to hay and cultivated crops. Large stones and steep slopes make the use of modern tillage equipment impractical. The soils are droughty during the growing season. The hazard of erosion is a major management concern.

This complex is poorly suited to pasture crops. Maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, addition of lime and fertilizer according to soil tests, and controlled grazing are useful in pasture management.

Potential productivity for trees on this complex is low for the Cataska soil and moderately high for the Hartleton soil. The soils are managed mostly for pine. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits the safe operation of heavy equipment.

Depth to bedrock and slope are the main limitations for nonfarm uses of this complex.

This complex is in capability subclass VIIs.

12C—Catoctin silt loam, 7 to 15 percent slopes. This soil is moderately deep, strongly sloping, and well drained. It is on side slopes and narrow convex ridgetops. Areas are irregularly elongated and range from 5 to about 20 acres.

Typically, the surface layer is dark brown and dark yellowish brown silt loam about 5 inches thick. The subsoil is about 13 inches thick. It is strong brown very channery silt loam containing pockets of reddish brown silty clay loam. The substratum below a depth of 18 inches is yellowish brown extremely channery silty loam. Hard greenstone bedrock is at a depth of 28 inches.

Included with this soil in mapping are small areas of well drained Myersville, Rabun, and Starr soils. The Myersville and Rabun soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas that have outcrops of rock and areas that have slopes of less than 7 percent. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone is 20 to 30 inches thick. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is strongly acid to slightly acid, unless limed. Depth to bedrock is 20 to 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is moderately well suited to cultivated crops. Crop response to lime and fertilizer is limited by the very low available water capacity. Conservation tillage, using cover crops and grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. They also improve tilth, infiltration, and fertility and increase the available water capacity.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate for oaks and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Slope and erosion are the major hazards or limitations to the growing and harvesting of trees.

This soil is limited for most nonfarm uses. Slope, depth to bedrock, and seepage are limitations for sanitary facilities. Slope and depth to bedrock are limitations for most building sites. Because of slope and droughtiness this soil is poorly suited to lawns, landscaping, and golf fairways. Depth to bedrock limits its use as a source of roadfill. This soil is limited for most recreational development. Slope limits its use for playgrounds. This soil is good for use as openland wildlife habitat and fair for use as woodland wildlife habitat.

This soil is in capability subclass IIIe.

12D—Catoctin silt loam, 15 to 25 percent slopes. This soil is moderately deep, moderately steep, and well drained. It is on side slopes. Areas are irregularly elongated and range from 5 to about 50 acres.

Typically, the surface layer is dark brown and dark yellowish brown silt loam about 5 inches thick. The subsoil is about 13 inches thick. It is strong brown very channery silt loam containing pockets of reddish brown silty clay loam. The substratum below a depth of 18 inches is yellowish brown extremely channery silt loam. Hard greenstone bedrock is at a depth of 28 inches.

Included with this soil in mapping are small areas of well drained Myersville, Rabun, and Starr soils. The Myersville and Rabun soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. The included soils make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone is 20 to 30 inches thick. The organic matter content is low to moderate, and natural fertility is medium. This soil is commonly strongly acid to slightly acid. Depth to bedrock is 20 to 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is poorly suited to cultivated crops. Crop response to lime and fertilizer is limited by the very low available water capacity. Conservation tillage, using cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. They also improve tilth, infiltration, and fertility and increase the available water capacity.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate for oaks and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Slope and erosion are the major hazards or limitations to the growing and harvesting of trees.

This soil is limited for most nonfarm uses. Slope, depth to bedrock, and seepage are limitations for sanitary facilities. Slope and depth to bedrock are limitations for most building sites. Because of the moderately steep slopes this soil is poorly suited to lawns, landscaping, and golf fairways. Slope, excess fines, and depth to bedrock limit its use as a source of roadfill. This soil is limited for most recreational development. Slope limits its use for playgrounds. This soil is good for use as openland wildlife habitat and fair for use as woodland wildlife habitat.

This soil is in capability subclass IVe.

12E—Catoctin silt loam, 25 to 45 percent slopes. This soil is moderately deep, steep, and well drained. It is on side slopes. Areas are irregularly elongated and range from 5 to 50 acres or more.

Typically, the surface layer is dark brown and dark yellowish brown silt loam about 5 inches thick. The subsoil is about 13 inches thick. It is strong brown very channery silt loam containing pockets of reddish brown silty clay loam. The substratum below a depth of 18 inches is yellowish brown extremely channery silt loam. Hard greenstone bedrock is at a depth of 28 inches.

Included with this soil in mapping are small areas of well drained Myersville, Rabun, and Starr soils. The Myersville and Rabun soils are throughout the mapped areas. The Starr soils are on foot slopes and along small drainageways. Also included are small areas that have outcrops of rock and areas that have slopes of less than 25 percent. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone is 20 to 30 inches thick. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is strongly acid to slightly acid. Depth to bedrock is 20 to 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to cultivated crops. The use of modern tillage equipment is impractical because of the steep slope.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate for oaks and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Slope and erosion are the major hazards or limitations to the growing and harvesting of trees.

This soil is very limited for most nonfarm uses. Slope, depth to bedrock, and seepage are limitations for sanitary facilities. Slope and depth to bedrock are limitations for most building sites. Because of the steep slope this soil is severely limited for lawns, landscaping, and golf fairways. Slope and bedrock limit its use as a source of roadfill. This soil is limited for most recreational development. Slope limits its use for playgrounds. This soil is fair for use as openland wildlife habitat and fair for use as woodland wildlife habitat.

This soil is in capability subclass VIe.

13C—Catoctin very stony silt loam, 7 to 15 percent slopes. This soil is moderately deep, strongly sloping, and well drained. It is on side slopes and narrow convex ridgetops. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas are irregularly elongated and range from 5 to about 20 acres.

Typically, the surface layer is dark brown and dark yellowish brown silt loam about 5 inches thick. The subsoil is about 13 inches thick. It is strong brown very channery silt loam containing pockets of reddish brown silty clay loam. The substratum below a depth of 18 inches is yellowish brown extremely channery silt loam. Hard greenstone bedrock is at a depth of 28 inches.

Included with this soil in mapping are small areas of well drained Myersville, Rabun, and Starr soils. The Myersville and Rabun soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas that have outcrops of rock and areas that have slopes of less than 7 percent. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone is 20 to 30 inches thick. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is strongly acid to slightly acid, unless limed. Depth to bedrock is 20 to 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate for oaks and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Slope and erosion are the major hazards or limitations to the growing and harvesting of trees.

This soil is limited for most nonfarm uses. Slope, depth to bedrock, and seepage are limitations for sanitary facilities. Slope and depth to bedrock are limitations for most building sites. Because of slope, large stones, and droughtiness this soil is poorly suited to lawns, landscaping, and golf fairways. Excess fines and depth to bedrock limit its use as a source of roadfill. This soil is limited for most recreational development. Slope and large stones limit its use as playgrounds. This soil is poor for use as openland wildlife habitat and fair for use as woodland wildlife habitat.

This soil is in capability subclass VIs.

13D—Catoctin very stony silt loam, 15 to 25 percent slopes. This soil is moderately deep, moderately steep, and well drained. It is on side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas are irregularly elongated and range from 5 to about 50 acres.

Typically, the surface layer is dark brown and dark yellowish brown silt loam about 5 inches thick. The subsoil is about 13 inches thick. It is strong brown very channery silt loam containing pockets of reddish brown silty clay loam. The substratum below a depth of 18 inches is yellowish brown extremely channery silt loam. Hard greenstone bedrock is at a depth of 28 inches.

Included with this soil in mapping are small areas of well drained Myersville, Rabun, and Starr soils. The Myersville and Rabun soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas that have outcrops of rock, areas that have slopes of more than 25 percent, and areas that do not have stones on the surface. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone is 20 to 30 inches thick. The organic matter content is low to moderate, and the natural fertility is medium. This soil is commonly strongly acid to slightly acid. Depth to bedrock is 20 to 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate for oaks and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Slope and erosion are the major hazards or limitations to the growing and harvesting of trees.

This soil is limited for most nonfarm uses. Slope, depth to bedrock, and seepage are limitations for sanitary facilities. The slope is a limitation for most building sites. Because of the slope this soil is severely limited for lawns, landscaping, and golf fairways. Excess fines and depth to bedrock limit its use as a source of roadfill. This soil is limited for most recreational development. Slope and large stones limit its use as playgrounds. This soil is poor for use as openland wildlife habitat and fair for use as woodland wildlife habitat.

This soil is in capability subclass IVs.

13E—Catoctin very stony silt loam, 25 to 45 percent slopes. This soil is moderately deep, steep, and well drained. It is on side slopes of the Blue Ridge and Southwest Mountain. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas are irregularly elongated and range from 5 to about 50 acres.

Typically, the surface layer is dark brown and dark yellowish brown silt loam about 5 inches thick. The subsoil is about 13 inches thick. It is strong brown very channery silt loam containing pockets of reddish brown silty clay loam. The substratum below a depth of 18 inches is yellowish brown extremely channery silt loam. Hard greenstone bedrock is at a depth of 28 inches.

Included with this soil in mapping are small areas of well drained Myersville, Rabun, and Starr soils. The Myersville and Rabun soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas that have outcrops of rock, areas that have slopes of less than 25 percent, and areas that do not have stones on the surface. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone is 20 to 30 inches thick. The organic matter content is low to moderate, and natural fertility is medium. This soil commonly is strongly acid to slightly acid. Depth to bedrock is 20 to 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface and steep slopes make use of tillage equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate for oaks and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Slope and erosion are the major hazards or limitations to the growing and harvesting of trees.

This soil is severely limited for most nonfarm uses. Slope, depth to bedrock, and seepage are limitations for sanitary facilities. Slope and depth to bedrock are limitations for most building sites. Because of the steep slope this soil is severely limited for lawns, landscaping, and golf fairways. Slope, excess fines, and depth to bedrock limit its use as a source of roadfill. This soil is severely limited for most recreational development. Slope and large stones limit its use as playgrounds. This soil is poor for use as openland wildlife habitat and fair for use as woodland wildlife habitat.

This soil is in capability subclass VIIs.

14B—Chester loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad, convex ridgetops in the Piedmont. Slopes are smooth and about 100 to 300 feet long. Areas of this soil commonly are irregularly rounded or long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark brown loam about 7 inches thick. The subsoil is mostly strong brown loam and yellowish red clay loam about 34 inches thick. The substratum is multicolored yellowish red, strong brown, white, and yellowish brown loam and sandy loam to a depth of 60 inches.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils and well drained Hayesville and Thurmont soils. The Ashe soils are near breaks to steeper slopes and around outcrops of rock. The Hayesville and Thurmont soils are throughout the mapped area. Also included are small areas of soils that have a gravelly or very stony surface layer and severely eroded soils that have a surface layer of yellowish red clay loam. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. Some areas are in pasture, and a few areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Hardwoods do well on this soil.

The potential frost action and the moderately permeable subsoil are the main limitations for nonfarm uses. The moderately permeable subsoil limits use of the soil for septic tank absorption fields and for sewage lagoons. The potential frost action is a limitation for local roads and streets. Slope is a limitation for playgrounds. This soil is a good source of roadfill.

This soil is in capability subclass IIe.

14C—Chester loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow, convex ridgetops, the points of ridges, and narrow, convex side slopes. Slopes are smooth and about 200 to 500 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 40 acres.

Typically, the surface layer of the Chester soil is dark brown loam about 7 inches thick. The subsoil is about 34 inches thick. It is mostly strong brown loam and yellowish red clay loam. The substratum to a depth of 60 inches is multicolored yellowish red, strong brown, white, and yellowish brown loam and sandy loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, well drained Hayesville and Thurmont soils, and well drained to moderately well drained Meadowville soils. The Ashe soils are near breaks to steeper slopes and around outcrops of rock. The Hayesville and Thurmont soils are throughout the mapped area. The Meadowville soils are along small drainageways and in depressions. Also included are small areas of soils that have a gravelly or very stony surface layer and small areas of severely eroded soils that have a yellowish red clay loam surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. Some areas are in pasture, and some areas are in woodland.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Minimum tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain tilth and the content of organic matter and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Hardwoods do well. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, a moderately permeable subsoil, and potential frost action are the main limitations for nonfarm uses. Slope limits use of the soil as a building site and for recreational development. Slope and the moderately permeable subsoil limit most sanitary facilities. The potential frost action and slope limit use of the soil for local roads and streets. This soil is a good source of roadfill.

This soil is in capability subclass IIIe.

14D—Chester loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on narrow, convex side slopes. Slopes are smooth and about 200 to 500 feet long. Areas of this soil commonly are long and winding. They range from 15 to about 40 acres.

Typically, the surface layer of the Chester soil is dark brown loam about 7 inches thick. The subsoil is about 34 inches thick. It is mostly strong brown loam and yellowish red loam and clay loam. The substratum to a depth of 60 inches is multicolored yellowish red, strong brown, white, and yellowish brown loam and sandy loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, well drained Hayesville and Thurmont soils, and well drained to moderately well drained Meadowville soils. The Ashe soils are near breaks to steeper slopes and around the outcrops of rock. The Hayesville and Thurmont soils are throughout the mapped area. The Meadowville soils are along small drainageways and in depressions. Also included are small areas of soils that have a gravelly or very stony surface layer and small areas of severely eroded soils that have a yellowish red clay loam surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and natural fertility are low. This soil commonly is strongly acid or very strongly acid, but reaction in the surface layer is variable because of local liming. Bedrock generally is at a depth of more than 60 inches.

Most areas of this soil are in pasture, and some areas are in woodland.

This soil is poorly suited to cultivated crops. The severe erosion hazard is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Hardwoods do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff to help control erosion. The slope limits safe operation of heavy equipment.

Slope is the main limitation for nonfarm uses. Slope limits use of the soil as a building site, for recreational development, and for most sanitary facilities. The soil is a fair source of roadfill.

This soil is in capability subclass IVe.

14E—Chester loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on convex side slopes in the Piedmont and Blue Ridge. Slopes are smooth and about 200 to 800 feet long. Areas of this soil commonly are long and winding. They range from 15 to about 75 acres.

Typically, the surface layer of the Chester soil is dark brown loam about 7 inches thick. The subsoil is about 34 inches thick. It is mostly strong brown loam and yellowish red loam and clay loam. The substratum to a depth of 60 inches is multicolored yellowish red, strong brown, white, and yellowish brown loam and sandy loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, well drained Hayesville soils, excessively drained Parker soils, and well drained to moderately well drained Meadowville soils. The Ashe, Hayesville, and Parker soils are throughout the mapped area. The Meadowville soils are along small drainageways and on foot slopes. Also included are small areas of soils that have a gravelly or very stony surface layer and small areas of severely eroded soils that have a yellowish red clay loam surface layer. Included soils make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid, but reaction in the surface layer is variable because of local liming. Bedrock generally is at a depth of more than 60 inches.

Some areas of this soil are in pasture, and some areas are in woodland.

This soil is not suited to hay and cultivated crops. The use of modern equipment is impractical because of the steep slopes. The severe hazard of erosion is a major management concern.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Hardwoods do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope is the main limitation for nonfarm uses. Slope limits use of the soil as a building site and for recreational development, most sanitary facilities, and local roads and streets. This soil is a poor source of roadfill because of steep slopes.

This soil is in capability subclass VIe.

15C—Chester very stony loam, 7 to 15 percent slopes. This soil is deep, strongly sloping, and well drained. It is on narrow, convex ridgetops, the points of ridges, and narrow, convex side slopes. Stones, about 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 200 to 600 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark brown loam about 7 inches thick. The subsoil is about 34 inches thick. It is mostly strong brown loam and yellowish red loam and clay loam. The substratum to a depth of 60 inches is mostly yellowish red, strong brown, white, and yellowish brown loam and sandy loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, excessively drained Parker soils, and well drained Hayesville and Porters soils. The Ashe and Parker soils are near breaks to steeper slopes and around outcrops of rock. The Hayesville soils are throughout the mapped area. The Porters soils are mainly on north-facing slopes. Also included are small areas of soils that do not have stones on the surface. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and natural fertility are low. This soil commonly is strongly acid or very strongly acid. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. Stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Hardwoods do well. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope, the moderately permeable subsoil, low strength, and stones are the main limitations for nonfarm uses. Slope and large stones limit use of the soil as a building site and for recreational development. Slope, large stones, and the moderately permeable subsoil limit its use for most sanitary facilities. The low strength and slope limit its use for local roads and streets. This soil is a fair source of roadfill.

This soil is in capability subclass VIs.

15D—Chester very stony loam, 15 to 25 percent slopes. This deep, moderately steep and sloping, well drained soil is on narrow convex ridgetops and side slopes. Stones, about 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 300 to 1,200 feet long. Areas of this soil commonly are long and winding.

Typically, the surface layer of this soil is dark brown loam about 7 inches thick. The subsoil is about 34 inches thick. It is mostly strong brown and yellowish red loam and clay loam. The substratum to a depth of 60 inches is mostly yellowish red, strong brown, white, and yellowish brown loam and sandy loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, excessively drained Parker soils, and well drained Hayesville and Porters soils. The Ashe and Parker soils are near breaks to steeper slopes and around outcrops of rock. The Hayesville soils are throughout the mapped area. The Porters soils are mainly on north-facing slopes. Also included are small areas of soils that do not have stones on the surface. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low.

This soil commonly is strongly acid or very strongly acid. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. Stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Hardwoods do well. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope and the large stones are the main limitations for nonfarm uses. Slope limits use of the soil as a building site and for recreational development. Slope and large stones limit its use for most sanitary facilities. The slope limits its use for local roads and streets. This soil is a fair source of roadfill.

This soil is in capability subclass VIs.

15E—Chester very stony loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on mountain side slopes. Stones, about 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 400 to 1,500 feet long. Areas of this soil commonly are long and winding. They range from 15 to about 100 acres.

Typically, the surface layer of this soil is dark brown loam about 7 inches thick. The subsoil is about 34 inches thick. It is mostly strong brown and yellowish red loam and clay loam. The substratum to a depth of 60 inches is mostly yellowish red, strong brown, white, and yellowish brown loam and sandy loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, excessively drained Parker soils, and well drained Hayesville and Porters soils. The Ashe and Parker soils are throughout the mapped area, generally around outcrops of rock. The Hayesville soils are throughout the area. The Porters soils are mainly on north-facing slopes. Also included are small areas of soils that do not have stones on the surface. Included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. Large stones and steep slopes make use of modern equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Hardwoods do well. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope limits use of this soil for most nonfarm uses. Slope and large stones limit use of the soil for topsoil. The soil is a poor source of roadfill because of the steep slopes.

This soil is in capability subclass VIIs.

16—Chewacla silt loam. This deep, nearly level, somewhat poorly drained soil is on flood plains along streams and large drainageways in the Piedmont. Areas of this low-lying soil commonly are long and narrow. They range from 5 to about 50 acres. Slopes are 0 to 2 percent.

Typically, the surface layer of this soil is dark brown silt loam about 8 inches thick. The subsoil is 52 inches thick. The upper part of the subsoil to a depth of 26 inches is mostly pale brown and light yellowish brown silt loam and silty clay loam and has light gray mottles. The lower part of the subsoil to a depth of 60 inches or more is light brownish gray and yellowish brown silty clay loam and silt loam.

Included with this soil in mapping are small areas of well drained Riverview soils and poorly drained Wehadkee soils. The Riverview soils are on the slightly higher positions, mainly close to the stream. The Wehadkee soils are in depressions, mainly away from the stream. Also included are small areas of sandy soils and gravelly soils. Included soils make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is slow. The hazard of erosion is slight. This soil has good tilth. The substratum has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is slightly acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Flooding occurs on occasion for brief periods from late in fall to spring. A seasonal high water table is at depth of 1/2 foot to 1 1/2 feet during winter and spring.

Most areas of this soil are farmed. Some areas are in pasture.

This soil is well suited to cultivated crops where drained and protected from flooding. When lime and fertilizer are applied according to soil tests, crops respond well. The soil is wet and cold in spring, and wetness commonly interferes with tillage. If the soil is not protected from flooding, crops are damaged by brief flooding on an average of once or less every 2 years. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to most pasture and hay crops. Alfalfa is short lived because of the seasonal wetness. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, drainage, control of flooding, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is very high, especially for loblolly pine, American sycamore, yellow-poplar, and sweetgum. Seeds and seedlings are limited by the seasonal wetness. The soil is soft when wet, and the use of heavy equipment is limited during wet periods.

The shallow depth to the seasonal high water table and flooding are the main limitations for nonfarm uses. The seasonal high water table and flooding prevent use of the soil as a building site, for most sanitary facilities, and for recreational areas. Many areas dry out slowly in spring and after heavy rains. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIIw.

17—Craigsville loam. This deep, nearly level, well drained soil is on flood plains and first bottoms. Areas of this soil commonly are elongated. They are along the course of the adjacent stream. They range from 5 to about 100 acres. Slopes commonly are 0 to 2 percent (fig. 4).

Typically, the surface layer of this soil is brown loam about 8 inches thick. The subsoil is about 15 inches thick. It is mostly brown gravelly or very cobbly sandy loam. The substratum to a depth of 60 inches or more is strong brown extremely cobbly sandy loam and extremely gravelly loamy sand.

Included with this soil in mapping are small spots and strips that are somewhat poorly drained and poorly drained. These spots and strips are in depressions and areas away from the streams and where springs enter the flood plain. They are indicated on the soil maps by wet spot symbols. Also included are small areas of soils that have a cobbly surface layer. The somewhat poorly drained and poorly drained soils make up about 15 percent of mapped areas, and the other included soils make up about 35 percent.

Permeability is moderately rapid or rapid, and available water capacity is very low or low. This soil has good tilth. The surface layer is friable and easily tilled, but cobbly spots may interfere with tillage. Surface runoff is slow. The hazard of erosion is slight. The subsoil has low shrink-swell potential. The root zone extends to a depth of 60 inches or more. The organic matter content is low to high, and the natural fertility is medium. This soil commonly is very strongly acid or strongly acid throughout, but reaction in the surface layer is variable as a result of local liming. Flooding occurs on occasion for very brief periods during winter and spring.

Most areas of this soil are in pasture. A few areas are farmed, and a few areas are in woodland.

This soil is moderately well suited to cultivated crops. It is droughty during the growing season. Crops are damaged by very brief flooding on an average of once in 2 to 5 years. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to reduce crusting and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and damages the stand of grasses and legumes.

Potential productivity for trees on this soil is high, especially for loblolly pine, eastern white pine, and yellow-poplar. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Flooding is the main limitation for nonfarm uses (fig. 5). It limits the use of the soil for building sites, for sanitary landfills, for septic tank absorption fields, and for most recreational uses. This soil is a fair source of roadfill, but the large stones limit this use.

This soil is in capability subclass IIw.

18B—Creedmoor loam, 2 to 7 percent slopes. This deep, gently sloping, moderately well drained to somewhat poorly drained soil is on toe slopes, in upland depressions, at the heads of drainageways, and along intermittent drainageways. Slopes are smooth and about 100 to 300 feet long. Most areas of this soil are irregularly long and winding. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is brown loam about 8 inches thick. The subsoil is about 52 inches thick. The upper 35 inches of the subsoil is mostly yellowish brown silty clay loam and clay and has gray mottles below a depth of about 22 inches. The lower 17 inches of the subsoil is light gray clay and has reddish yellow and brownish yellow mottles. The substratum to a

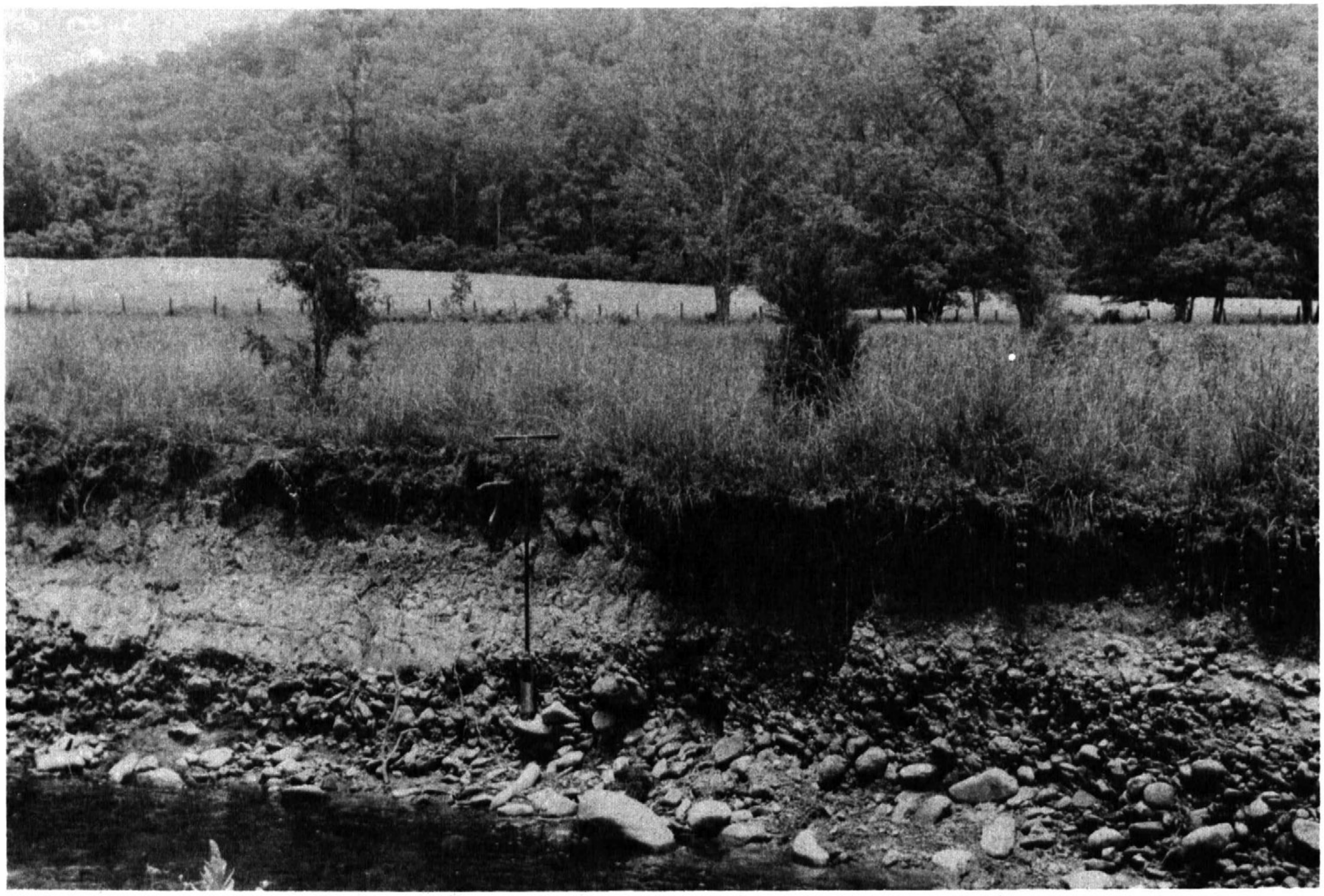

Figure 4.—Streambank in Craigsville loam on flood plain. McQueen loam, 2 to 7 percent slopes, on terrace behind the fence. Chester loam, 25 to 45 percent slopes, on forested side slopes in background.

depth of 70 inches is multicolored red and reddish yellow clay loam and has pockets of light gray silty clay.

Included with this soil in mapping are small areas of well drained to moderately well drained Manassas soils and poorly drained Worsham soils. The Manassas soils are on the higher positions throughout the mapped area, and the Worsham soils are on the slightly lower positions. Also included are small areas that have slopes of less than 2 percent. Included soils make up about 20 percent of mapped areas.

Permeability is very slow, and available water capacity is moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches. Depth to bedrock is generally more than 5 feet. The organic matter content is low, and the natural fertility is medium. This soil commonly is very strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 1 1/2 to 2 feet during winter and early in spring.

Most areas of this soil are in pasture or woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The soil is wet and cold early in spring, and wetness commonly interferes with early tillage. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled

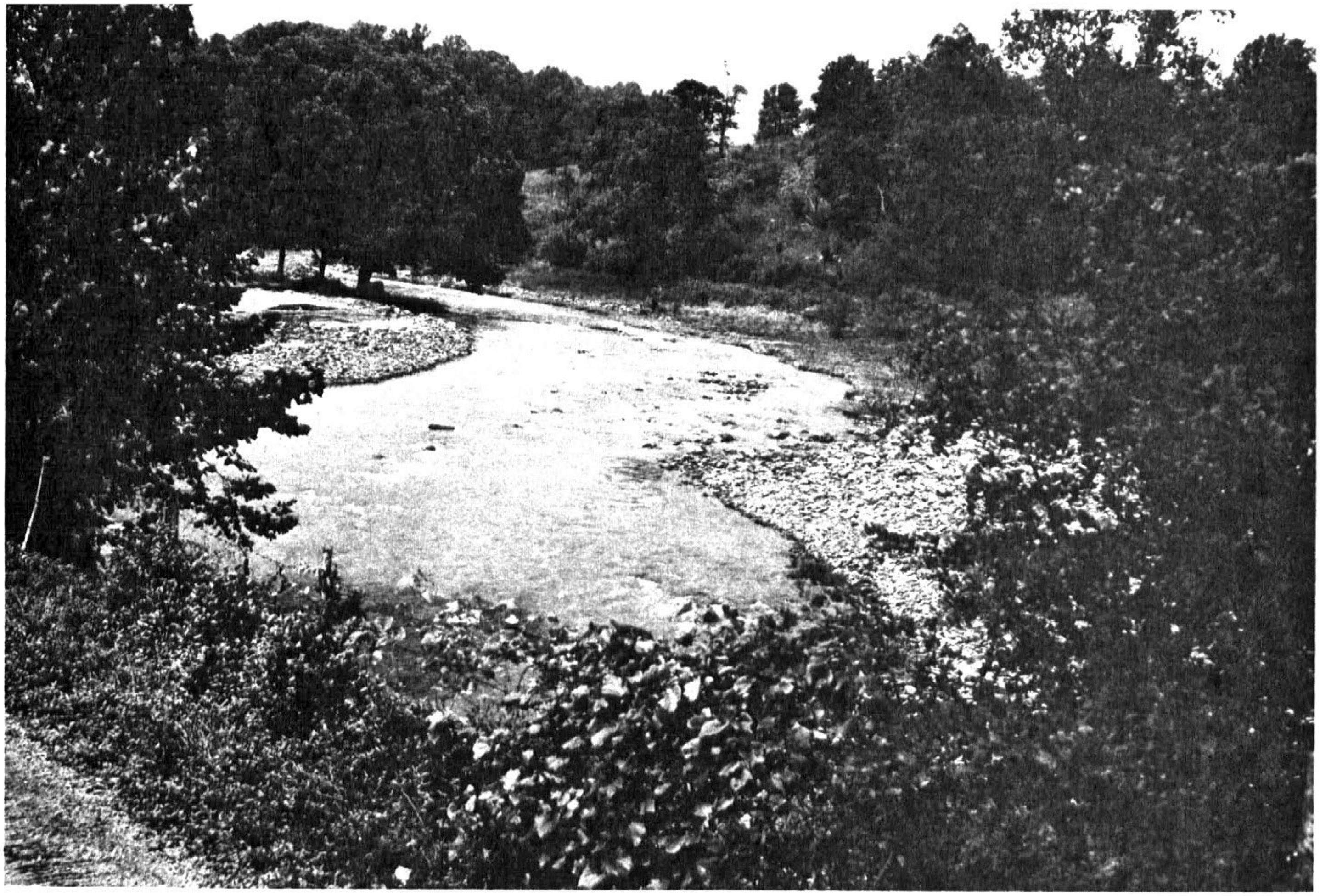

Figure 5.—An active stream flowing through an area of Craigsville loam.

grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, yellow-poplar, sweetgum, and oaks. Seeds and seedlings survive and grow well. The soil is soft when wet, and the use of heavy equipment is limited during wet periods.

The shallow depth to the seasonal high water table, the moderate shrink-swell potential, and the clayey, slowly permeable subsoil are the main limitations for nonfarm uses. The seasonal high water table and moderate shrink-swell potential limit use of this soil as a building site. The slowly permeable clayey subsoil and the seasonal wetness limit most sanitary facilities. The seasonal wetness and slow permeability are limitations for recreational development. The low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIIw.

19B—Cullen loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad convex ridgetops. Areas of this soil commonly are irregularly rounded or oblong. They range from 3 to 15 or more acres.

Typically, the surface layer of this soil is reddish brown loam about 8 inches thick. The subsoil is mostly red or dark red clay and clay loam about 52 inches thick. The substratum is mostly red, yellowish red, and yellowish brown loam.

Included with this soil in mapping are small areas of well drained Ashe and Hayesville soils. The Hayesville soils are on landscape positions similar to this Cullen soil. The Ashe soils are on the more sloping positions.

Also included are small areas of soils that have bedrock at a depth of about 24 inches and severely eroded areas that have a surface layer of red clay loam and clay. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 60 inches or more. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is medium acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. Some areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, the moderate shrink-swell potential, and the moderately permeable clayey subsoil are the main limitations for nonfarm uses. The low strength and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The moderately permeable subsoil limits use of the soil for septic tank absorption fields. The low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IIe.

19C—Cullen loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and on convex side slopes. Areas of this soil are commonly long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is reddish brown loam about 8 inches thick. The subsoil is mostly red or dark red clay and clay loam about 52 inches thick. The substratum to a depth of 67 inches is mostly red, yellowish red, and yellowish brown loam.

Included with this soil in mapping are small areas of well drained Ashe and Hayesville soils. The Hayesville soils are on landscape positions similar to those of this Cullen soil. The Ashe soils are on the more sloping positions. Also included are small areas of soils that have bedrock at a depth of about 24 inches and of severely eroded soils that have a red clay loam or clay surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has moderate shrink-swell potential. The organic matter content is low to moderate, and the natural fertility is medium. This soil is commonly medium acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. A few areas are in woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, moderate shrink-swell potential, and a moderately permeable, clayey subsoil are the main limitations for nonfarm uses. Slope, low strength, and the shrink-swell potential limit the use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. Slope and the moderately permeable subsoil limit use of the soil as a site for septic tank absorption fields and recreational areas. The low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IIIe.

19D—Cullen loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on narrow convex side slopes. Slopes are commonly complex. Areas of this soil are elongated or long and winding. They range from 3 to about 10 acres.

Typically, the surface layer of this soil is reddish brown loam about 8 inches thick. The subsoil is mostly red or dark red clay and clay loam about 52 inches thick. The substratum to a depth of 67 inches is red, yellowish red, and yellowish brown loam.

Included with this soil in mapping are small areas of well drained Ashe and Hayesville soils. The Hayesville soils are on landscape positions similar to those of this Cullen soil. The Ashe soils are mainly on the more sloping positions. Also included are small areas of soils that have bedrock at a depth of about 24 inches, severely eroded soils that have a red clay or clay loam surface layer, and gullied soils. Small outcrops of rock are mainly on the lower part of slopes. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 60 inches or more. The organic matter content is low to moderate, and the natural fertility is medium. This soil is medium acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland. Some areas are in permanent pasture.

This soil is poorly suited to cultivated crops. It is somewhat droughty during the growing season because of the rapid surface runoff, and crop response to lime and fertilizer is somewhat limited by the lack of moisture. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope and clayey subsoil are the main limitations for nonfarm uses. Slope limits the use of this soil as sites for buildings, septic tank absorption fields, and recreational areas. The slope and the clayey subsoil limit the use of this soil for sanitary landfills. When wet, the clayey subsoil limits vehicular traffic. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IVe.

20B3—Cullen clay loam, 2 to 7 percent slopes, severely eroded. This soil is deep, gently sloping and well drained. It is on narrow to broad convex ridgetops of Piedmont uplands. Areas of this soil are 200 to 400 feet wide and are elongated along the ridge or highly variable in shape. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is reddish brown clay loam about 4 inches thick. The subsoil is red clay loam and dark red clay about 48 inches thick. The substratum to a depth of 67 inches is mottled red, yellowish red, and yellowish brown loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, well drained Hayesville and Chester soils, and well drained to moderately well drained Meadowville soils. The Ashe, Hayesville, and Chester soils commonly are intermingled on the same landscape positions. The Meadowville soils are in shallow depressions and along drainageways. Also included are small areas of Cullen soils that have slopes of more than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. Tilth is fair, and the surface layer breaks up into clods if tilled when too wet. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid to medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. A few small areas are in permanent pasture or woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops and grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It reduces crusting and improves soil-seed contact.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fetilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate, especially for yellow-poplar, oaks, and pines.

Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The moderately permeable, clayey subsoil and seepage are limitations for sanitary facilities. The clayey subsoil and shrink-swell potential are limitations for most building sites. This soil is fairly well suited to lawns, landscaping, and golf fairways. It is well suited to recreational development. Slope limits its use for playgrounds. Low strength and excess fines limit the use of this soil as a source of roadfill. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIIe.

20C3—Cullen clay loam, 7 to 15 percent slopes, severely eroded. This soil is deep, strongly sloping, and well drained. It is on narrow convex ridgetops and convex side slopes. Areas of this soil are 100 to 300 feet wide and are elongated along the ridge or highly variable in shape. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is reddish brown clay loam about 4 inches thick. The subsoil is red clay loam and dark red clay about 48 inches thick. The substratum to a depth of 67 inches is mottled red, yellowish red, and yellowish brown loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, well drained Hayesville and Chester soils, and moderately well drained Meadowville soils. The Ashe, Hayesville, and Chester soils commonly are intermingled on the same landscape positions. The Meadowville soils are in shallow depressions and along drainageways. Also included are small areas of Cullen soils that have slopes of more than 15 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. Tilth is fair, and the surface layer breaks up into clods if tilled when too wet. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid through medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Some areas of this soil are farmed. Most areas are in permanent pasture or woodland.

This soil is poorly suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops and grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It also reduces crusting and improves soil-seed contact.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate, especially for yellow-poplar, oaks, and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The slope, moderately permeable, clayey subsoil, and seepage are limitations for sanitary facilities. The slope, clayey subsoil, and shrink-swell potential are limitations for most building sites. Slope limits this soil for lawns, landscaping, and golf fairways. Low strength and excess fines limit the use of this soil as a source of roadfill. Slope limits its use for playgrounds. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

20D3—Cullen clay loam, 15 to 25 percent slopes, severely eroded. This soil is deep, moderately steep, and well drained. It is on side slopes of Piedmont uplands. Areas of this soil are 100 to 300 feet wide and are along the drainage pattern. They range from 5 to about 15 acres.

Typically, the surface layer of this soil is reddish brown clay loam about 4 inches thick. The subsoil is red clay loam and dark red clay about 48 inches thick. The substratum to a depth of 67 inches is mottled red, yellowish red, and yellowish brown loam.

Included with this soil in mapping are small areas of somewhat excessively drained Ashe soils, well drained Hayesville and Chester soils, and moderately well drained Meadowville soils. The Ashe, Hayesville, and Chester soils commonly are intermingled on the same landscape positions. The Meadowville soils are in shallow depressions and along drainageways. Also included are small areas of Cullen soils that have slopes of less than 15 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid to medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to cultivated crops because of past erosion.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate, especially for yellow-poplar, oaks, shortleaf pine, and Virginia pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses because of steep slopes. The slope and clayey subsoil are limitations for sanitary facilities. Low strength and excess fines limit the use of this soil as a source of roadfill, and slope limits its use for recreational development. This soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIe.

21B—Culpeper fine sandy loam, 2 to 7 percent slopes. This soil is deep, gently sloping, and well drained. It is on narrow to broad convex ridgetops. Slopes are smooth and range from about 100 to 300 feet in length. Areas of this soil commonly are oval or irregularly elongated, and they range from 3 to about 100 acres.

Typically, the surface layer is brown and yellowish brown fine sandy loam about 8 inches thick. The subsoil is 29 inches thick. It is yellowish red clay loam and red clay and sandy clay loam. The substratum is reddish yellow fine sandy loam. Hard rock is at a depth of about 50 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Elioak soils and excessively drained Hazel soils. The Albemarle and Elioak soils are scattered throughout the mapped area. The Hazel soils are mainly on the steeper positions and near slope breaks. Also included are small areas of Culpeper soils that have slopes of more than 7 percent, small areas that have pebbles and cobbles in the surface layer, and small areas that are severely eroded. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is medium. The hazard of erosion is moderate. Tilth is good. The organic matter content and the natural fertility are low. Reaction commonly is very strongly acid or strongly acid throughout, but is variable in the surface layer because of local liming. The root zone extends to a depth of 36 inches. Bedrock is generally at a depth of 50 inches or more. The subsoil has moderate shrink-swell potential.

Most areas of this soil are in woodland. Some areas are in permanent pasture, and some areas are farmed.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content in this soil improves fertility and tilth, reduces crusting, and increases water infiltration and soil-seed contact.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Low strength, moderate shrink-swell potential, a moderately permeable clayey subsoil, and depth to rock are the main limitations for nonfarm uses. The clayey subsoil and depth to rock are limitations for landfills and shallow excavations. The moderate shrink-swell potential is a limitation for building sites. Low strength and excess fines limit use of this soil for roadfill. The moderate permeability of the subsoil and depth to rock limit its use for septic tank absorption fields. This soil is well suited to many recreational uses. Slope limits its use for playgrounds. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIe.

21C—Culpeper fine sandy loam, 7 to 15 percent slopes. This soil is deep, strongly sloping, and well drained. It is on narrow, convex ridgetops and on short side slopes. Slopes are smooth and range from about 200 to 400 feet in length. Areas of this soil commonly are long and winding, and they range from 10 to about 50 acres.

Typically, the surface layer is brown and yellowish brown fine sandy loam about 8 inches thick. The subsoil is about 29 inches thick. It is yellowish red clay loam and red clay and sandy clay loam. The substratum is reddish yellow fine sandy loam. Hard rock is at a depth of about 50 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Elioak soils and excessively drained Hazel soils. The Albemarle and Elioak soils are scattered throughout the mapped area. The Hazel soils are mainly on the steeper positions, near slope breaks, and on points of ridges. Also included are small areas of Culpeper soils that have slopes of more than 15 percent, small areas that have pebbles and cobbles in the surface layer, and small areas that are severely eroded. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid, and the hazard of erosion is severe. Tilth is fair. The organic matter content and the natural fertility are low. Reaction commonly is very strongly acid or strongly acid throughout but is variable in the surface layer because of local liming. The root zone extends to a depth of about 36 inches. Bedrock is generally at a depth of 50 inches or more. The subsoil has moderate shrink-swell potential.

Most areas of this soil are in permanent pasture or woodland. Some areas are being farmed.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. These practices also improve fertility and tilth, reduce crusting, and increase water infiltration and soil-seed contact.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

The slope, low strength, the moderate shrink-swell potential, the moderately permeable, clayey subsoil, and depth to bedrock are the main limitations for nonfarm uses. The slope, clayey subsoil, and depth to rock limit use of this soil for landfills and shallow excavations. The slope and moderate shrink-swell potential are limitations for building sites. Low strength and excess fines limit use of this soil for roadfill. The slope, moderate permeability of the subsoil, and depth to rock limit its use for septic tank absorption fields. This soil is moderately well suited to many recreational uses. Slope limits its use for playgrounds, and the severe erosion hazard limits paths and trails. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIIe.

21D—Culpeper fine sandy loam, 15 to 25 percent slopes. This soil is deep, moderately steep, and well drained. It is on convex side slopes. Slopes are smooth and range from about 200 to 600 feet in length. Areas of this soil commonly are long and winding, and they range from 10 to about 25 acres.

Typically, the surface layer is brown and yellowish brown fine sandy loam about 8 inches thick. The subsoil is abcut 29 inches thick. It is yellowish red clay loam and red clay and sandy clay loam. The substratum is reddish yellow fine sandy loam. Hard rock is at a depth of about 50 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Elioak soils and excessively drained Hazel soils. The Albemarle and Elioak soils are scattered throughout the mapped area. The Hazel soils are mainly on the steeper positions, near slope breaks, and on points of ridges. Also included are small areas of Culpeper soils that have slopes of less than 15 percent, small areas that have pebbles and cobbles in the surface layer, and areas that are severely eroded. Included soils make up about 20 percent of the mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid, and the hazard of erosion is severe. Tilth is fair. The organic matter content and the natural fertility are low. Reaction commonly is very strongly acid or strongly acid throughout, but is variable in the surface layer because of local liming. The root zone extends to a depth of about 36 inches. Bedrock is generally at a depth of more than 48 inches. The subsoil has moderate shrink-swell potential.

Most areas of this soil are in permanent pasture or woodland. Some areas are being farmed.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. These practices also improve fertility and tilth, reduce crusting, and increase water infiltration and soil-seed contact.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

The slope, low strength, and the depth to rock are the main limitations for nonfarm uses. The slope and depth to rock limit this soil for landfills and shallow excavations. Low strength and excess fines limit its use as a source of roadfill. The moderately steep slopes limit this soil for septic tank absorption fields. Slope limits the use of this soil for recreational development. This soil is fair for use as openland wildlife habitat and good for use as woodland wildlife habitat.

This soil is in capability subclass IVe.

22C3—Culpeper clay loam, 7 to 15 percent slopes, severely eroded. This soil is deep, strongly sloping, and well drained. It is on narrow, convex ridgetops and short side slopes. Slopes are smooth and range from about 100 to 400 feet in length. Areas of this soil commonly are long and winding, and they range from 10 to more than 30 acres.

Typically, the surface layer is reddish brown and yellowish red clay loam about 4 inches thick. The subsoil is about 27 inches thick. It is mainly red clay and sandy clay loam. The substratum is reddish yellow fine sandy loam. Hard rock is at a depth of 50 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Elioak soils and excessively drained Hazel soils. The Albemarle and Elioak soils are scattered throughout the mapped area. The Hazel soils are mainly on the steeper positions, near slope breaks, and on points of ridges. Also included are small areas of Culpeper soils that have slopes of more than 15 percent and small areas that have pebbles and cobbles in the surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid, and the hazard of erosion is severe. Tilth is fair. The organic matter content and the natural fertility are low. Reaction is very strongly acid or strongly acid throughout but is variable in the surface layer because of local liming. The root zone extends to a depth of about 34 inches. Bedrock is generally at a depth of more than 48 inches. The subsoil has moderate shrink-swell potential.

Most areas of this soil are in permanent pasture or woodland. Some areas are farmed.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond moderately well. Conservation tillage, using cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. These practices also improve fertility and tilth, reduce crusting, and increase water infiltration and soil-seed contact.

This soil is moderately well suited to pasture and hay. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderate, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

The slope, low strength, the moderate shrink-swell potential, the moderately permeable clayey subsoil, and depth to bedrock are the main limitations for nonfarm uses. The slope, clayey subsoil, and depth to rock limit this soil for landfills and shallow excavations. The slope and moderate shrink-swell potential are limitations for building sites. Low strength and excess fines limit use of this soil as a source for roadfill. The slope, moderate permeability of the subsoil, and depth to rock limit this soil for septic tank absorption fields. This soil is moderately well suited to many recreational uses. Slope limits the use of this soil for playgrounds, and the hazard of erosion is severe for paths and trails. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

23B—Davidson clay loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad convex ridgetops of Piedmont uplands. Slopes are smooth and 100 to 500 feet long. Areas of this soil commonly are irregularly rounded or oblong. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 4 inches thick. The subsoil is mostly dark red clay about 84 inches thick. The substratum is multicolored red, strong brown, and yellowish brown greenstone saprolite that crushes to silty clay loam to a depth of 105 inches.

Included with this soil in mapping are small areas of well drained Dyke and Rabun soils. The Dyke and Rabun soils are throughout the mapped area. Also included are severely eroded areas that have a surface layer of dark red clay and small areas that have stones on the surface. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has fair tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 60 inches. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is medium acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. Some areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, eastern white pine, yellow-poplar, and oaks do well on this soil.

The low strength, the moderately permeable subsoil, and the clayey texture of the subsoil are the main limitations for nonfarm uses. The low strength limits use of the soil for local roads and streets, and the clayey subsoil limits excavations. The clayey, moderately permeable subsoil limits the use of the soil for sanitary facilities. Slope is a limitation for playgrounds. The soil is poor as a source of roadfill.

This soil is in capability subclass IIe.

23C—Davidson clay loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and convex side slopes. Slopes are smooth and 150 to 500 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 4 inches thick. The subsoil is mostly dark red clay about 84 inches thick. The substratum to a depth of 105 inches is multicolored red, strong brown, and yellowish brown greenstone saprolite that crushes to silty clay loam.

Included with this soil in mapping are small areas of well drained Dyke, Rabun, and Starr soils. The Dyke and Rabun soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of soils that are severely eroded and have a dark red clay surface layer and small areas that have stones on the surface. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has fair tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 60 inches. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is medium acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. A few areas are in woodland.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, eastern white pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope, the low strength, and the clayey, moderately permeable subsoil are the main limitations for nonfarm uses. Low strength limits the use of this soil for local roads and streets. The slope and the clayey subsoil limit excavations. The slope and the clayey, moderately permeable subsoil limit use of the soil for most sanitary facilities. Slope is a limitation for recreational development. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

24B—Dogue silt loam, 2 to 7 percent slopes. This deep, gently sloping, moderately well drained soil is on broad terraces along the larger streams. Areas of this soil are elongated, or irregularly rounded, and are slightly concave. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark yellowish brown silt loam about 10 inches thick. The subsoil is mostly yellowish brown clay and clay loam about 42 inches thick. It has gray mottles below a depth of 24 inches. The substratum to a depth of 70 inches is strong brown clay loam and has light gray mottles.

Included with this soil in mapping are small areas of well drained McQueen soils and somewhat poorly drained Wahee soils. The Wahee soils are in depressions and along small drainageways. The McQueen soils are on slightly higher positions throughout the mapped area. Included soils make up about 15 percent of mapped areas.

Permeability is moderately slow, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 60 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid to very strongly acid, but reaction of the surface layer is variable because of local liming. A seasonal high water table is at a depth of 1 1/2 to 3 feet during winter and spring. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. Some areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and crops. Alfalfa is short lived because of seasonal wetness. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees is high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The shallow depth to the seasonal high water table, the moderate shrink-swell potential, the low strength, and a clayey, slowly permeable subsoil are the main limitations for nonfarm uses. The seasonal high water table limits use of this soil as a site for sanitary landfills. Low strength and the shrink-swell potential limit its use as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil is soft and is a limitation for local roads and streets. The slowly permeable subsoil limits use of this soil for septic tank absorption fields. Low strength and excess fines limit this soil's use as a source of roadfill.

This soil is in capability subclass IIe.

25B—Dyke silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on broad, convex foot slopes and colluvial fans. Slopes are smooth and are about 300 to 1,000 feet long. Areas of this soil are long and wide. They range from 5 to about 30 acres (fig. 6).

Typically, the surface layer of this soil is dark reddish brown silt loam about 8 inches thick. The upper 35 inches of the subsoil is dark red clay loam and clay, and the lower part to a depth of 60 inches or more is dark red clay.

Included with this soil in mapping are small areas of well drained Braddock, Davidson, Rabun, and Unison soils. These soils are throughout the mapped area. Also included are small areas of severely eroded soils that have a clay loam surface layer and small areas that have a very stony surface layer. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed and in cultivated crops or hay.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops (fig. 7). Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for mixed hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The low strength, a moderately permeable, clayey subsoil, and the moderate shrink-swell potential are the main limitations for nonfarm uses. Low strength, the shrink-swell potential, and the clayey subsoil limit use of this soil as a building site. The clayey subsoil and moderately permeable subsoil limit its use as a site for some sanitary facilities. Slope is a limitation for playgrounds. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIe.

25C—Dyke silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex side slopes of colluvial fans. Slopes are smooth and

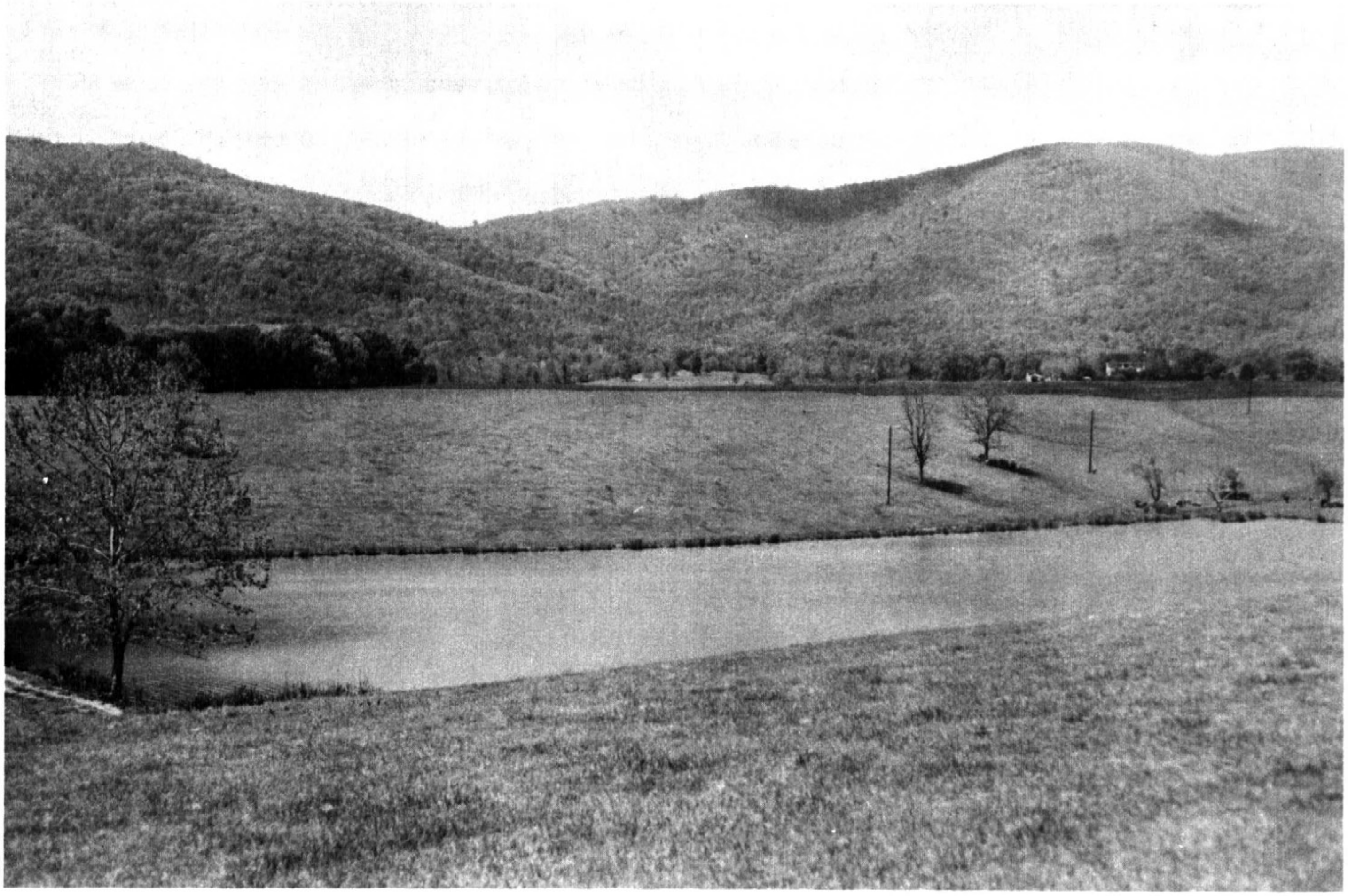

Figure 6.—An area of Dyke silt loam, 2 to 7 percent slopes, in foreground. Braddock clay loam, 7 to 15 percent slopes, severely eroded, in the area between the pond and the trees. The pond was designed and constructed to overcome the moderate seepage limitation in the Dyke soil.

about 300 to 600 feet long. Most areas of this soil are long and narrow. They range from 5 to 30 acres or more.

Typically, the surface layer of this soil is dark reddish brown silt loam about 8 inches thick. The upper 35 inches of the subsoil is dark red clay loam and clay, and the lower part to a depth of 60 inches or more is dark red clay.

Included with this soil in mapping are small areas of well drained Braddock, Davidson, Rabun, and Unison soils. These soils are throughout the mapped area. Also included are small areas of severely eroded soils that have a clay loam surface layer and small areas that have a very stony surface layer. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed and in cultivated crops or hay.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and

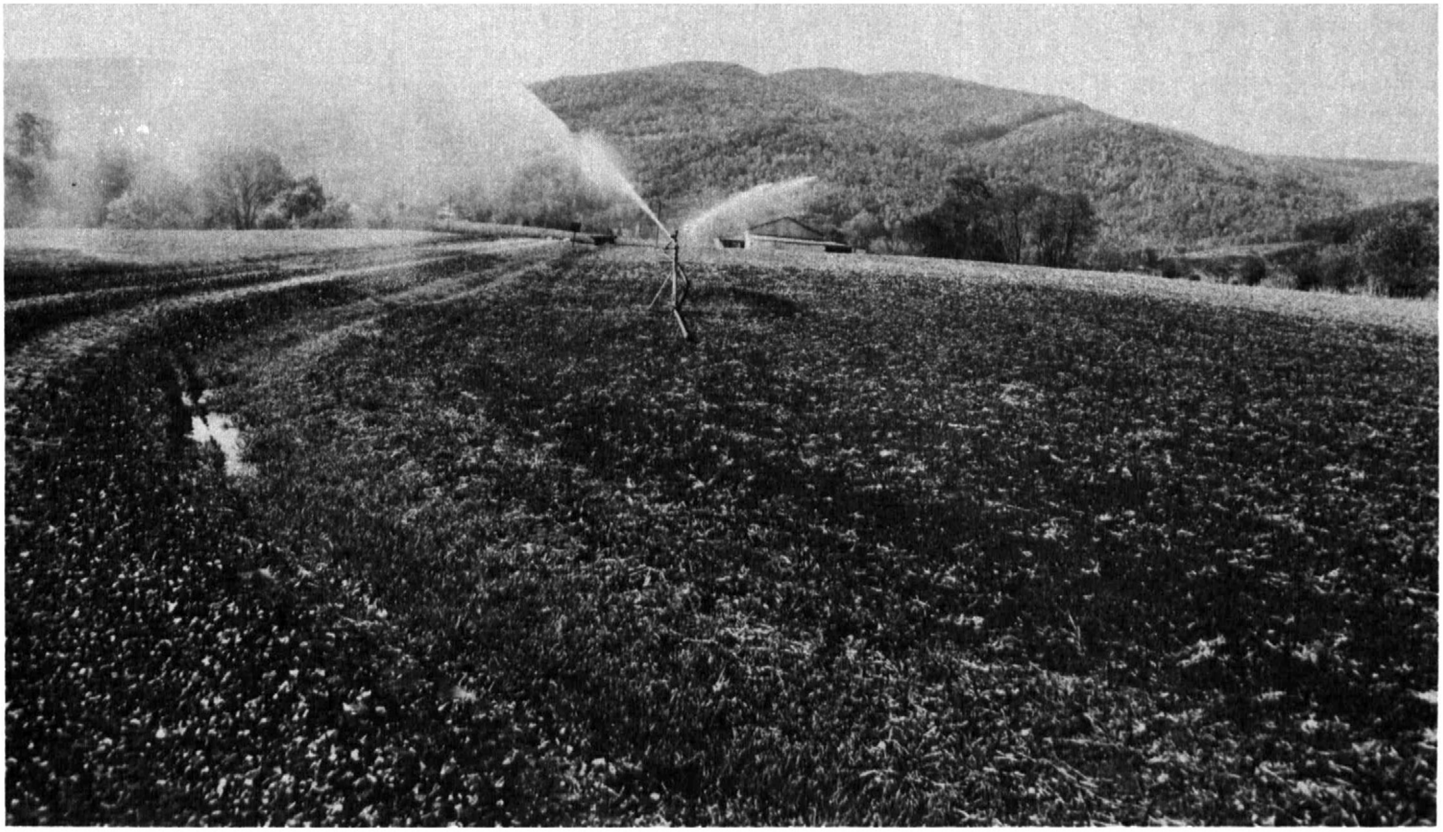

Figure 7.—Alfalfa seeded late in summer on Dyke silt loam, 2 to 7 percent slopes, is being irrigated to increase growth before winter.

help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for mixed hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

The low strength, a moderately permeable, clayey subsoil, the moderate shrink-swell potential, and the slope are the main limitations for nonfarm uses. Low strength, slope, shrink-swell potential, and the clayey subsoil limit use of this soil as a building site. The clayey subsoil, slope, and the moderately permeable subsoil limit the use of this soil as a site for most sanitary facilities. Slope is a limitation for most recreational development. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIe.

26B3—Dyke clay loam, 2 to 7 percent slopes, severely eroded. This deep, gently sloping, well drained soil is on broad, convex foot slopes and colluvial fans. Slopes are smooth and about 100 to 500 feet long. Areas of this soil are long and narrow. They range from 5 to about 15 acres.

Typically, the surface layer of this soil is dark red clay loam about 4 inches thick. The subsoil to depth of 60 inches or more is dark red clay.

Included with this soil in mapping are small areas of well drained Braddock, Davidson, Rabun, and Unison soils. These soils are throughout the mapped area. They make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. The surface layer is firm, and tilth is fair. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and the natural fertility is medium.

This soil is strongly acid or very strongly acid throughout, unless limed. Bedrock generally is at a depth of more than 5 feet.

Most areas of this soil are farmed and in cultivated crops or hay.

This soil is moderately well suited to cultivated crops. The moderate hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for mixed hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The low strength, a moderately permeable, clayey subsoil, and the moderate shrink-swell potential are the main limitations for nonfarm uses. Low strength, the shrink-swell potential, and the clayey subsoil limit use of this soil as a building site. The clayey, moderately permeable subsoil limits this soil as a site for some sanitary facilities. Slope is a limitation for playgrounds. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

26C3—Dyke clay loam, 7 to 15 percent slopes, severely eroded. This deep, strongly sloping, well drained soil is on convex side slopes of colluvial fans. Slopes are smooth and about 200 to 400 feet long. Areas of this soil are long and narrow. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark red clay loam about 4 inches thick. The subsoil to a depth of 60 inches or more is dark red clay.

Included with this soil in mapping are small areas of well drained Braddock, Davidson, Rabun, and Unison soils. These soils are throughout the mapped area. They make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is firm, and tilth is fair. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Some areas of this soil are in cultivated cropland. Some areas are in pasture.

This soil is poorly suited to cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for mixed hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

The low strength, the moderately permeable, clayey subsoil, the moderate shrink-swell potential, and the slope are the main limitations for nonfarm uses. Low strength, slope, shrink-swell potential, and the clayey subsoil limit use of this soil as a building site. The clayey, moderately permeable subsoil and slope are limitations for most sanitary facilities. Slope is a limitation for most recreational development. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IVe.

26D3—Dyke clay loam, 15 to 25 percent slopes, severely eroded. This deep, moderately steep, well drained soil is on convex side slopes of colluvial ridges. Slopes are smooth and are about 100 to 400 feet long. Areas of this soil are long and narrow. They range from 5 to about 20 acres.

Typically, the surface layer of this soil is dark red clay loam about 4 inches thick. The subsoil to a depth of 60 inches or more is dark red clay.

Included with this soil in mapping are small areas of well drained Braddock, Hayesville, and Rabun soils. These soils are throughout the mapped area. Also included are small areas of noneroded soils that have a silt loam surface layer and small areas that have slopes of more than 25 percent. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches.

The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in pasture. A few areas are in woodland.

This soil is not suited to cultivated crops because of past erosion.

Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for mixed hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

The slope and the clayey subsoil are the main limitations for nonfarm uses. Slope limits use of the soil as a building site. The slope and the clayey subsoil are limitations for most sanitary facilities. Slope is a limitation for recreational development. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass VIe.

27B—Elloak loam, 2 to 7 percent slopes. This soil is deep, gently sloping, and well drained. It is on broad to narrow convex ridgetops that are about 200 feet to 600 feet wide. Slopes commonly are smooth. Areas of this soil are along the ridges and commonly are irregularly elongated. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark brown and reddish brown loam about 8 inches thick. The subsoil is about 41 inches thick. It is yellowish red silty clay loam and red silty clay in the upper part and red silty clay loam and silt loam in the lower part. The substratum to a depth of 72 inches is mottled strong brown, yellowish red, and reddish brown silt loam.

Included with this soil in mapping are small areas, generally less than 2 acres, of well drained Glenelg soils and excessively drained Hazel soils. The Glenelg soils are throughout the mapped area but mainly are on the concave slopes. The Hazel soils are mainly on steeper slopes. Also included are small areas of soils that have a gravelly surface layer and small severely eroded areas that have a yellowish red clay loam or silty clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low. This soil is very strongly acid to medium acid throughout, but reaction in the surface layer is variable because of liming. Bedrock is generally at a depth of more than 5 feet.

Many areas of this soil are being farmed. Some areas are in woodland, and some are in permanent pasture.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It also reduces crusting and improves soil-seed contact.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for oak, yellow-poplar, Virginia pine, and shortleaf pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

This soil is moderately limited for many nonfarm uses. The slope, the moderately permeable, clayey subsoil, and seepage are limitations for sanitary facilities. Permeability is a limitation for septic tank absorption fields. This soil is moderately limited for area type sanitary landfills. The clayey subsoil, low strength, and potential frost action are limitations for many nonfarm uses. The excess fines and thin layers limit this soil as a source of roadfill. This soil is well suited to some types of recreational development. Slope limits its use as playgrounds. It is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIe.

27C—Elloak loam, 7 to 15 percent slopes. This soil is deep, strongly sloping, and well drained. It is on convex ridgetops and side slopes that are about 200 to 400 feet wide. Slopes commonly are smooth. Areas of this soil are along the ridges and commonly are long and winding. They range from 5 to about 100 acres.

Typically, the surface layer of this soil is dark brown and reddish brown loam about 8 inches thick. The subsoil is about 41 inches thick. It is yellowish red silty clay loam and red silty clay in the upper part and red silty clay loam and silt loam in the lower part. The substratum to a depth of 72 inches is mottled strong brown, yellowish red, and reddish brown silt loam.

Included with this soil in mapping are small areas, generally less than 2 acres, of well drained Glenelg soils and excessively drained Hazel soils. The Glenelg soils are throughout the mapped area but are mainly on the concave slopes. The Hazel soils mainly have steeper slopes and are near slope breaks. Also included are small areas that have a gravelly surface layer and small severely eroded areas that have a yellowish red clay loam or silty clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer is variable because of liming. Bedrock generally is at a depth of more than 5 feet.

Most areas of this soil are in woodland or in permanent pasture. A few areas are farmed.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Additions of organic matter improve tilth, infiltration, and fertility. They also reduce crusting and improve soil-seed contact.

This soil is well suited to pasture and moderately well suited to hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for oak, yellow-poplar, Virginia pine, and shortleaf pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

This soil is moderately limited for many nonfarm uses. The slope, the moderately permeable clayey subsoil, and seepage are limitations for sanitary facilities. Permeability is a limitation for septic tank absorption fields. This soil is moderately limited for area type sanitary landfills. The clayey subsoil, low strength, and potential frost action are limitations for community development. The excess fines and thin layers limit this soil as a source of roadfill. This soil is limited for some types of recreational development. The slope limits its use as playgrounds. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIIe.

27D—Elloak loam, 15 to 25 percent slopes. This soil is deep, moderately steep, and well drained. It is on side slopes that are about 200 to 400 feet wide. Slopes commonly are smooth. Areas of this soil are along ridges and commonly are long and winding. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark brown and reddish brown loam about 8 inches thick. The subsoil is about 41 inches thick. It is yellowish red silty clay loam and red silty clay in the upper part and red silty clay loam and silt loam in the lower part. The substratum to a depth of 72 inches is mottled strong brown, yellowish red, and reddish brown silt loam.

Included with this soil in mapping are small areas, generally less than 2 acres, of well drained Glenelg soils and excessively drained Hazel soils. The Glenelg soils are throughout the mapped area but are mainly on the concave slopes. The Hazel soils mainly have steeper slopes and are near slope breaks. Also included are small areas that have a gravelly surface layer and small severely eroded areas that have a yellowish red clay loam or silty clay loam surface. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer is variable because of liming. Bedrock generally is at a depth of more than 5 feet.

Most areas of this soil are in woodland or in permanent pasture. A few areas are being farmed.

This soil is poorly suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Additions of organic matter improve tilth, infiltration, and fertility. They also reduce crusting and improve soil-seed contact.

This soil is moderately well suited to pasture and poorly suited to hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for oak, yellow-poplar, Virginia pine, and shortleaf pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

This soil is severely limited for many nonfarm uses. The moderately steep slope is a limitation for most sanitary facilities. The slope, excess fines, and thin layers limit this soil as a source of roadfill. The slope limits the use of this soil for recreational development. This soil is fair for use as openland wildlife habitat and good for use as woodland wildlife habitat.

This soil is in capability subclass IVe.

28C3—Elloak clay loam, 7 to 15 percent slopes, severely eroded. This soil is deep, strongly sloping, and well drained. It is on convex ridgetops and side slopes that are about 200 to 400 feet wide. Slopes commonly are smooth. Areas of this soil are along the ridges and commonly are irregularly elongated. They range from 5 to about 20 acres.

Typically, the surface layer of this soil is yellowish red clay loam about 4 inches thick. The subsoil is about 33 inches thick. It is red silty clay in the upper part and red silty clay loam and silt loam in the lower part. The substratum to a depth of 64 inches is mottled strong brown, yellowish red, and reddish brown silt loam.

Included with this soil in mapping are small areas, generally less than 2 acres, of well drained Glenelg soils and excessively drained Hazel soils. The Glenelg soils are throughout the mapped area but are mainly on the concave slopes. The Hazel soils mainly have steeper slopes and are near slope breaks. Also included are small areas that have a gravelly surface layer and areas that have slopes of more than 15 percent or less than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe, and past erosion has reduced the range of moisture content for good workability. This soil has fair tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer is variable because of liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland or in permanent pasture. A few areas are being farmed.

This soil is poorly suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Additions of organic matter improve tilth, infiltration, and fertility. They also reduce crusting and improve soil-seed contact.

This soil is moderately well suited to pasture and poorly suited to hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer and increases runoff and erosion. It also reduces plant growth.

The potential productivity for trees on this soil is high, especially for oak, yellow-poplar, Virginia pine, and shortleaf pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

This soil is moderately limited for many nonfarm uses. The slope, moderately permeable, clayey subsoil, and seepage are limitations for sanitary facilities. Permeability is a limitation for septic tank absorption fields. This soil is moderately limited for area type sanitary landfills. The clayey subsoil, low strength, and potential frost action are limitations for many kinds of community development. The excess fines and thin layers limit this soil as a source of roadfill. This soil is limited for some types of recreational development. The slope limits its use as playgrounds. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

28D3—Elloak clay loam, 15 to 25 percent slopes, severely eroded. This soil is deep, moderately steep, and well drained. It is on side slopes that are about 200 to 400 feet wide. Slopes commonly are smooth. Areas of this soil are along ridges and commonly are irregularly elongated. They range from 5 to about 20 acres.

Typically, the surface layer of this soil is yellowish red clay loam about 4 inches thick. The subsoil is about 33 inches thick. It is red silty clay in the upper part and red silty clay loam and silt loam in the lower part. The substratum to a depth of 64 inches is strong brown, yellowish red, and reddish brown silt loam.

Included with this soil in mapping are small areas, generally less than 2 acres, of well drained Glenelg soils and excessively drained Hazel soils. The Glenelg soils are throughout the mapped area but are mainly on the concave slopes. The Hazel soils are mainly on steeper slopes. Also included are small areas of soils that have a gravelly surface layer and small areas that have slopes of more than 25 percent or less than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer is variable because of liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland or in permanent pasture. A few areas are being farmed.

This soil is not suited to cultivated crops or hay because of past erosion.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer and increases runoff and erosion. It also reduces plant growth.

The potential productivity for trees on this soil is high, especially for oak, yellow-poplar, Virginia pine, and shortleaf pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

This soil is severely limited for many nonfarm uses. The moderately steep slope is a limitation for most sanitary facilities. The slope, excess fines, and thin layers limit this soil as a source of roadfill. The slope limits the use of this soil for recreational development. This soil is fair for use as openland wildlife habitat and good for use as woodland wildlife habitat.

This soil is in capability subclass VIe.

29B—Fauquier silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad convex ridgetops. Slopes are smooth and are 300 to 500 feet long. Areas of this soil commonly are irregularly rounded or oblong. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 6 inches thick. The subsoil is mostly red clay or silty clay about 28 inches thick. The substratum to a depth of 60 inches is mostly red, highly weathered greenstone that crushes to silt loam or silty clay loam.

Included with this soil in mapping are small areas of well drained Myersville and Rabun soils. These soils are on landscape positions similar to those of this Fauquier soil. Also included are small areas of soils in which bedrock is at a depth of about 24 inches and severely eroded areas that have a surface layer of red silty clay loam. Included soils make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is medium acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. Hard rock is at a depth of more than 40 inches.

Most areas of this soil are farmed. Some areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

The soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, the moderate shrink-swell potential, the depth to rock, the clayey texture of the subsoil, and the moderately permeable subsoil are the main limitations for nonfarm uses. The low strength and the shrink-swell potential limit use of the soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The moderately permeable subsoil and depth to rock limit use of the soil for most sanitary facilities. Low strength and excess fines limit the soil as a source of roadfill.

This soil is in capability subclass IIe.

29C—Fauquier silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and on convex side slopes. Slopes are smooth and are 300 to 500 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 20 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 6 inches thick. The subsoil is mostly red clay or silty clay about 28 inches thick. The substratum is mostly red highly weathered greenstone that crushes to silt loam or silty clay loam.

Included with this soil in mapping are small areas of well drained Myersville and Rabun soils. These soils are on landscape positions similar to those of this Fauquier soil. Also included are small areas of soils in which bedrock is at a depth of about 24 inches and small areas of severely eroded soils that have a red silty clay loam surface layer. Included soils make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential.

The root zone extends to a depth of 30 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is medium acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to bedrock is more than 40 inches.

Most areas of this soil are farmed. A few areas are in woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope, the low strength, the moderate shrink-swell potential, the depth to rock, and the moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The slope, the low strength, and the shrink-swell potential limit the use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The slope, the depth to rock, and the moderately permeable subsoil limit use of the soil for most sanitary facilities. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

29D—Fauquier silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on convex side slopes. Slopes are smooth and 400 to 800 feet long. Areas of this soil are elongated or long and winding. They range from 5 to about 20 acres or more.

Typically, the surface layer of this soil is reddish brown silt loam about 6 inches thick. The subsoil is mostly red clay or silty clay about 28 inches thick. The substratum to a depth of 60 inches is mostly red, highly weathered greenstone that crushes to silt loam or silty clay loam.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Rabun soils. The Catoctin soils are mainly on the more sloping positions and around outcrops of rock. The Myersville and Rabun soils are scattered throughout the mapped area. Also included are small areas of severely eroded soils that have a red silty clay loam surface layer, small areas of gullied soils, and small areas of outcrops of rock. The included soils and outcrops make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil is medium acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland.

This soil is poorly suited to cultivated crops. It is somewhat droughty during the growing season because of the rapid surface runoff, and crop response to lime and fertilizer is somewhat limited by this lack of moisture. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and to help control erosion. The slope limits safe operation of heavy equipment.

The slope, the depth to rock, and the clayey subsoil are the main limitations for nonfarm uses. The slope limits use of this soil as sites for buildings, for septic tank absorption fields, and for recreational areas. Slope, the depth to rock, and the clayey subsoil limit use of the soil for some sanitary facilities. When wet, the clayey subsoil limits vehicular traffic. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IVe.

29E—Fauquier silt loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on convex side slopes. Slopes are smooth and 400 to 800 feet long. Areas of this soil are elongated or long and winding. They range from 5 to 20 acres or more.

Typically, the surface layer of this soil is reddish brown silt loam about 6 inches thick. The subsoil is mostly red clay or silty clay about 28 inches thick. The substratum to a depth of 60 inches is mostly red, highly weathered greenstone that crushes to silt loam or silty clay loam.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Rabun soils. The Catoctin soils are mainly on the more sloping positions and around outcrops of rock. The Myersville and Rabun soils are scattered throughout the mapped areas. Also included are small areas of severely eroded soils that have a red silty clay loam surface layer, small areas of gullied soils, and small areas of outcrops of rock. The included soils and outcrops make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil is medium acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland.

This soil is not suited to cultivated crops. The steep slope makes use of modern tillage equipment impractical. The soil is somewhat droughty during the growing season because of the very rapid surface runoff, and plant response to lime and fertilizer is somewhat limited by this lack of mosture.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope, the depth to rock, and the clayey subsoil are the main limitations for nonfarm uses. Slope limits use of this soil as a site for buildings, for septic tank absorption fields, and for recreational areas. The slope, the depth to rock, and the clayey subsoil limit use of the soil for some sanitary facilities. When wet, the clayey subsoil limits vehicular traffic. Slope, low strength, and excess fines limit the soil as a source of roadfill.

This soil is in capability subclass VIe.

30C3—Fauquier silty clay loam, 7 to 15 percent slopes, severely eroded. This soil is deep, strongly sloping, and well drained. It is on narrow convex ridgetops and convex side slopes. Slopes are smooth and 300 to 500 feet long. Areas of this soil are 100 to 300 feet wide and are elongated or highly variable in shape along the ridges. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is red silty clay loam about 4 inches thick. The subsoil is about 24 inches thick. It is mostly red clay and silty clay. The substratum to a depth of 56 inches is red, highly weathered greenstone that crushes to silt loam or silty clay loam.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, Rabun, and Starr soils. The Catoctin soils are on the steeper positions and around the outcrops of rock. The Myersville and Rabun soils commonly are intermingled and on the same landscape positions as this Fauquier soil. The Starr soils are in shallow depressions and along drainageways. Also included are small areas of soils that have slopes of more than 15 percent. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. Tilth is poor, and the surface layer breaks up into clods if tilled when too wet. The subsoil has moderate shrink-swell potential. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 40 inches.

Some areas of this soil are farmed. Most areas are in permanent pasture or woodland.

This soil is poorly suited to cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond moderately well. Conservation tillage, using cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It also helps reduce crusting and improve soil-seed contact.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderately high, especially for oaks, loblolly pine, and Virginia pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. Slope, depth to rock, moderately permeable, clayey subsoil, and seepage are limitations for sanitary facilities. The slope, the clayey subsoil, and the moderate shrink-swell potential are limitations for most building sites. Slope limits this soil for lawns, landscaping, and golf fairways. Low strength and excess fines limit its use as a source of roadfill. Slope limits this soil for use as playgrounds. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

30D3—Fauquier silty clay loam, 15 to 25 percent slopes, severely eroded. This soil is deep, moderately steep and well drained. It is on narrow convex ridgetops and convex side slopes. Slopes are smooth and 300 to 500 feet long. Areas of this soil are 100 to 200 feet wide and are elongated along the ridge or highly variable in shape. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is red silty clay loam about 4 inches thick. The subsoil is about 24 inches thick. It is mostly red clay and silty clay. The substratum to a depth of 56 inches is red, highly weathered greenstone that crushes to silt loam or silty clay loam.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Rabun soils. The Catoctin soils are on the steeper positions and around the outcrops of rock. The Myersville and Rabun soils commonly are intermingled and on the same landscape positions as this Fauquier soil. Also included are small areas of soils that have slopes of more than 25 percent. Included soils make up about 25 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. Tilth is poor, and the surface layer breaks into clods if tilled when too wet. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content is low, and the natural fertility is medium. This soil is strongly acid to medium acid, unless limed. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in permanent pasture or woodland. Some small areas are farmed.

This soil is not suited to cultivated crops because of the severe hazard of erosion and the damage of past erosion.

This soil is poorly suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderately high, especially for oaks, loblolly pine, and Virginia pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. Slope, depth to rock, moderately permeable clayey subsoil, and seepage are limitations for sanitary facilities. The slope, clayey subsoil, and moderate shrink-swell potential are limitations for most building sites. Slope limits this soil for lawns, landscaping, and golf fairways. Low strength and excess fines limit its use as a source of roadfill. Slope limits the use of this soil as playgrounds. This soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass VIe.

31C—Fauquier very stony silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops, and convex side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and 300 to 900 feet long. Areas of this soil are adjacent to drainageways and commonly are long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 6 inches thick. The subsoil is mostly red clay or silty clay about 28 inches thick. The substratum to a depth of 60 inches or more is red silt loam or silty clay loam mottled in shades of red, yellow, brown, and black.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Rabun soils. The Catoctin soils are mainly near the breaks to steeper soils and around outcrops of rock. The Myersville and Rabun soils are throughout the mapped area. Also included are small areas of severely eroded soils that have a silty clay loam surface layer, soils that do not have stones on the surface, and soils that have slopes of less than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability is moderately slow, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is strongly acid or medium acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. Stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope, the low strength, the moderate shrink-swell potential, the slowly permeable, clayey subsoil, and the depth to rock are the main limitations for nonfarm uses. Slope, low strength, and shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The slope, the depth to rock, and the slowly permeable, clayey subsoil limit use of the soil for most sanitary facilities. Slope and large stones are limitations for recreational areas.

This soil is in capability subclass VIs.

31D—Fauquier very stony silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on narrow convex ridgetops and convex side slopes. Most side slopes are complex and commonly long and winding. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this map unit range from 5 to about 30 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 6 inches thick. The subsoil is mostly red clay or silty clay about 28 inches thick. The substratum to a depth of 60 inches is red, highly weathered greenstone that crushes to silt loam or silty clay loam.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Rabun soils. The Catoctin soils are mainly on breaks to steeper soils and around outcrops of rock. The Myersville and Rabun soils are throughout the mapped area. Also included are areas of soils that have slopes of more than 25 percent and soils that do not have stones on the surface. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is strongly acid or medium acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock generally is at a depth of more than 40 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. The stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope, the low strength, the slowly permeable subsoil, and the clayey subsoil are the main limitations for nonfarm uses. Slope limits use of the soil as a building site and for shallow excavations. When wet, the clayey subsoil limits vehicular traffic. The slope and the clayey subsoil limit use of the soil for most sanitary facilities. Slope and large stones are limitations for recreational areas. The low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass VIs.

32B—Fluvanna silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad convex ridgetops. Areas of this soil are commonly irregularly rounded or oval. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is brown silt loam about 8 inches thick. The subsoil is mostly yellowish red clay or silty clay loam about 40 inches thick. The substratum is multicolored silt loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat poorly drained to moderately well drained Orange soils and well drained Cullen, Nason, and Tatum soils. The Cullen soils are mainly on the higher landscape positions. The Orange, Nason, and Tatum soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer, severely eroded soils that have a surface layer of strong brown clay loam, and small areas of outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately slow, and available water capacity is moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland. Some of the acreage is farmed.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength of the soil, the moderate shrink-swell potential, and the moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The moderately permeable, clayey subsoil limits sanitary facilities. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

32C—Fluvanna silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and convex side slopes. Most side slopes are complex, and they commonly are long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is brown silt loam about 8 inches thick. The subsoil is mostly yellowish red clay or silty clay loam about 40 inches thick. The substratum to a depth of 60 inches or more is multicolored silt loam.

Included with this soil in mapping are small areas of somewhat poorly drained to moderately well drained Orange soils and well drained Cullen, Nason, and Tatum soils. The Cullen soils are mainly on the higher landscape positions. The Orange, Nason, and Tatum soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer, severely eroded soils that have a strong brown clay loam surface layer, and small areas of outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately slow, and the available water capacity is moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low to moderate, and natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope, the low strength, the moderate shrink-swell potential, and the slowly permeable, clayey subsoil are the main limitations for nonfarm uses. Slope, low strength, and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits use of the soil for most sanitary facilities and for recreational areas. The low strength and excess fines limit the use of this soil as a source of roadfill.

This soil is in capability subclass IIIe.

33C—Fluvanna very stony silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and on convex side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Most side slopes are complex and commonly are long and winding. Areas of this soil range from 3 to about 20 acres or more.

Typically, the surface layer of this soil is brown silt loam about 8 inches thick. The subsoil is mostly yellowish red clay or silty clay loam about 40 inches thick. The substratum to a depth of 60 inches or more is multicolored silt loam.

Included with this soil in mapping are small areas of well drained Cullen and Elioak soils and somewhat poorly drained to moderately well drained Orange soils. The Cullen and Elioak soils are mainly on the higher landscape positions. The Orange soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer and soils that do not have stones on the surface. Included soils make up about 20 percent of mapped areas.

Permeability is moderately slow, and available water capacity is moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope, the low strength, the moderate shrink-swell potential, and the slowly permeable, clayey subsoil are the main limitations for nonfarm uses. Slope, low strength, and shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The slope and the slowly permeable, clayey subsoil limit use of the soil for most sanitary facilities. Slope and large stones are limitations for recreational areas. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass VIs.

34B—Glenelg loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad, convex ridgetops. Slopes are smooth and about 200 to 300 feet long. Areas of this soil commonly are irregularly rounded or long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark brown and dark yellowish brown loam about 8 inches thick. The subsoil is mostly strong brown and yellowish red silty clay loam about 20 inches thick. The substratum is multicolored yellowish red, strong brown, and yellowish brown saprolite that crushes to loam to a depth of 80 inches.

Included with this soil in mapping are small areas of well drained Elioak and Manor soils throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer and severely eroded soils that have a surface layer of yellowish red silty clay loam. Included soils make up about 10 percent of mapped areas.

Permeability is moderate, and the available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content is low to moderate, and natural fertility is low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. Some areas are farmed, and some areas are in pasture.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The potential frost action, low strength, and seepage are the main limitations for nonfarm uses. Seepage limits use of this soil for septic tank absorption fields and for sewage lagoon areas. The potential frost action is a limitation for local roads and streets. Slope is a limitation for playgrounds. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIe.

34C—Glenelg loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow, convex ridgetops and on convex side slopes. Slopes are smooth and about 400 to 600 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 40 acres.

Typically, the surface layer of this soil is dark brown and dark yellowish brown loam about 8 inches thick. The subsoil is mostly strong brown and yellowish red silty clay loam about 20 inches thick. The substratum to a depth of 80 inches is multicolored yellowish red, strong brown, and yellowish brown saprolite that crushes to loam.

Included with this soil in mapping are small areas of well drained Elioak and Manor soils. The Elioak and Manor soils are throughout the mapped area. Also included are small areas of gravelly soils and of severely eroded soils that have a yellowish red silty clay loam surface layer. Included soils make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content is low to moderate, and the natural fertility is low. This soil commonly is strongly acid or very strongly acid, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. Some areas are farmed, and some areas are in pasture.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, seepage, low strength, and potential frost action are the main limitations for nonfarm uses. Slope limits use of this soil as a building site and for recreational development. Slope and seepage limit most sanitary facilities. The potential frost action and slope limit use of the soil for local roads and streets. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIIe.

34D—Glenelg loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on side slopes along drainageways. Slopes are smooth and about 400 to 800 feet long. Areas of this soil commonly are long and winding. They range from 10 to about 40 acres.

Typically, the surface layer of this soil is dark brown and dark yellowish brown loam about 8 inches thick. The subsoil is mostly strong brown and yellowish red silty clay loam about 20 inches thick. The substratum is multicolored yellowish red, strong brown, and yellowish brown saprolite that crushes to loam to a depth of 80 inches.

Included with this soil in mapping are small areas of well drained Elioak and Manor soils, excessively drained Hazel soils, and well drained to moderately well drained Meadowville soils. The Elioak and Manor soils are throughout the mapped area. The Hazel soils are on the steeper positions and around outcrops of rock. The Meadowville soils are on foot slopes and along small drainageways. Also included are small areas of soils that have a gravelly surface layer and of severely eroded soils that have a surface layer of yellowish red silty clay loam. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content is low to moderate, and the natural fertility is low. This soil commonly is strongly acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. Some areas are in pasture.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management problem. The response of crops to lime and fertilizer is limited by the rapid runoff. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope is the main limitation for nonfarm uses. Slope limits use of this soil for most sanitary facilities. Slope is a limitation for building site development and recreational development. Slope and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IVe.

34E—Glenelg loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on side slopes leading down to drainageways. Slopes are smooth and about 400 to 800 feet long. Areas of this soil commonly are long and winding. They range from 10 to about 40 acres.

Typically, the surface layer of this soil is dark brown and dark yellowish brown loam about 8 inches thick. The subsoil is about 20 inches thick. It is mostly strong brown and yellowish red silty clay loam. The substratum to a depth of 80 inches is multicolored yellowish red, strong brown, and yellowish brown saprolite that crushes to loam.

Included with this soil in mapping are small areas of well drained Elioak and Manor soils, excessively drained Hazel soils, and well drained to moderately well drained Meadowville soils. The Elioak and Manor soils are throughout the mapped area. The Hazel soils are on the steeper positions and around outcrops of rock. The Meadowville soils are on foot slopes and along small drainageways. Also included are small areas of soils that have a gravelly surface layer and small areas of severely eroded soils that have a yellowish red silty clay loam surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content is low to moderate, and the natural fertility is low. This soil commonly is strongly acid or very strongly acid, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. Some areas are in pasture.

This soil is not suited to cultivated crops. The steep slope makes use of modern tillage equipment impractical. The very severe hazard of erosion is a major management concern.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope is the main limitation for nonfarm uses. Slope limits use of this soil as a building site, for recreational development and for most sanitary facilities. Slope and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass VIe.

35C—Hartleton-Cataska very stony loams, 7 to 15 percent slopes. This complex consists of sloping, well drained and excessively drained, deep and moderately deep soils. They are on convex ridges and side slopes of the Blue Ridge. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 200 to 400 feet long. Areas of this complex are along the mountain ranges and are long and winding. They range from 10 to 30 acres or more.

This complex is about 60 percent Hartleton soils, 30 percent Cataska soils, and 10 percent other soils. The areas of individual soils are so small or so intermingled that to separate them in mapping was not practical.

Typically, the surface layer of the Hartleton soil is yellowish brown channery loam about 7 inches thick. The subsoil is yellowish brown and brownish yellow channery and very channery loam about 25 inches thick. The substratum, about 12 inches thick, is brownish yellow extremely channery loam. Hard phyllite and shale bedrock is at a depth of 44 inches.

Typically, the surface layer of the Cataska soil is very dark grayish brown and brown channery loam about 5 inches thick. The subsoil is yellowish brown very channery silt loam about 15 inches thick. The substratum, about 18 inches thick, is 90 percent phyllite and shale fragments coated with yellowish brown loam. Hard phyllite and shale bedrock is at a depth of 38 inches.

Included with this complex in mapping are small areas, generally less than 3 acres in size, of soils that have an extremely stony surface layer and soils that do not have stones on the surface. Included soils make up less than 10 percent of mapped areas.

Permeability of these soils is moderate. Available water capacity is low for the Cataska soil and moderate for the Hartleton soil. Surface runoff is rapid. The hazard of erosion is severe. The natural fertility and the organic matter content are low in both soils. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 29 inches in the Cataska soil and to more than 30 inches in the Hartleton soil. The surface layer and subsoil are commonly very strongly acid or strongly acid, unless limed. The depth to bedrock is a limiting factor in the use of both of these soils.

Most areas of this complex are in woodland.

This complex is not suited to hay and cultivated crops. Large stones make use of modern equipment impractical. The soils are droughty during the growing season. The hazard of erosion is a major management concern.

This complex is poorly suited to pasture. Maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, adding lime and fertilizer according to soil tests, and controlled grazing are useful in pasture management.

Potential productivity for trees on this complex is moderately high for the Hartleton soils and low for the Cataska soils. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Logging roads and skid trails should be on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

Depth to bedrock and slope are the main limitations for most nonfarm uses of this complex.

This complex is in capability subclass VIIs.

36B—Hayesville loam, 2 to 7 percent slopes. This soil is deep, well drained, and gently sloping. It is on narrow to broad, convex ridgetops. Slopes are smooth and about 200 to 600 feet long. Areas of this soil are irregularly oval or are long and winding. They range from 5 to about 100 acres.

Typically, the surface layer of this soil is brown and strong brown loam about 7 inches thick. The subsoil is about 51 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 83 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Braddock, Chester, and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Braddock, Chester, and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer and small areas of severely eroded soil. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The erosion hazard is moderate. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low to moderate. This soil commonly is strongly acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in permanent pasture. Some areas are being farmed, and a few areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help maintain organic matter content and control erosion. These practices also improve fertility and tilth, reduce crusting, and increase water infiltration and soil-seed contact.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

The moderate permeability and clayey subsoil are the main limitations for most nonfarm uses. The clayey subsoil limits excavations and trench type sanitary landfills. The moderately permeable subsoil limits use of this soil for septic tank absorption fields. Slope is a limitation for playgrounds. This soil is good for use as openland and woodland wildlife habitats. Low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IIe.

36C—Hayesville loam, 7 to 15 percent slopes. This soil is deep, well drained, and strongly sloping. It is on narrow convex ridgetops and side slopes. Slopes are smooth and about 200 to 600 feet long. Areas of this soil are long and winding. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is brown and strong brown loam about 7 inches thick. The subsoil is about 51 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 83 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Braddock, Chester, and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Braddock, Chester, and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer and small areas of severely eroded soil. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low to moderate. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in permanent pasture. Some areas are being farmed, and a few areas are in woodland.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help maintain organic matter content and control erosion. These practices also improve fertility and tilth, reduce crusting, and increase water infiltration and soil-seed contact.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

The slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses. Slope limits use of this soil for community development, and the clayey subsoil limits excavations and trench type sanitary landfills. The moderately permeable subsoil limits septic tank absorption fields. Slope limits the use of this soil for playgrounds. This soil is good for use as openland and woodland wildlife habitats. Low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IIIe.

36D—Hayesville loam, 15 to 25 percent slopes. This soil is deep, well drained, and moderately steep. It is on side slopes that border small drainageways. Slopes are smooth and about 200 to 400 feet long. Areas of this soil are long and winding. They range from 5 to about 20 acres.

Typically, the surface layer of this soil is brown and strong brown loam about 7 inches thick. The subsoil is about 51 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 83 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Braddock, Chester, and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Braddock, Chester, and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer and small areas of severely eroded soil. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low to moderate. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in permanent pasture. Some areas are in woodland, and a few areas are farmed.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help maintain organic matter content and control erosion. These practices also improve fertility and tilth, reduce crusting, and increase water infiltration and soil-seed contact.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses. Slope limits use of this soil for building sites, for most sanitary facilities, and for playgrounds. The clayey subsoil limits trench type sanitary landfills. This soil is fair for use as openland wildlife habitat and good for use as woodland wildlife habitat. Low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IVe.

36E—Hayesville loam, 25 to 45 percent slopes. This soil is deep, well drained, and steep. It is on side slopes that border small drainageways. Slopes are smooth and about 200 to 600 feet long. Areas of this soil are long and winding. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is brown and strong brown loam about 7 inches thick. The subsoil is about 51 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 83 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Chester and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Chester and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer and small areas of severely eroded soil. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low to moderate. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in permanent pasture. Some areas are in woodland.

This soil is not suited to cultivated crops. The severe hazard of erosion is a major management concern.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses. Slope limits use of this soil for building sites, for most sanitary facilities, and for playgrounds. The clayey subsoil limits trench type sanitary landfills. This soil is fair for use as openland and woodland wildlife habitats. Slope, low strength, and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIe.

37B3—Hayesville clay loam, 2 to 7 percent slopes, severely eroded. This soil is deep, well drained, and gently sloping. It is on narrow convex ridgetops. Slopes are smooth and about 200 to 400 feet long. Areas of this soil are irregularly oval or are long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is yellowish red clay loam about 4 inches thick. The subsoil is about 47 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 79 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of well drained Braddock, Chester, and Cullen soils. These soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer and areas of soils in which bedrock is at a depth of less than 60 inches. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. Tilth is fair, and the surface layer breaks into large clods if tilled when too wet or dry. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low. The soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in permanent pasture. Some areas are being farmed, and a few areas are in woodland.

This soil is moderately well suited to cultivated crops. The moderate hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help maintain organic matter content and control erosion. These practices also improve fertility and tilth, reduce crusting, and increase water infiltration and soil-seed contact.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizers according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Moderate permeability and clayey subsoil are the main limitations for most nonfarm uses. The clayey subsoil limits excavations and trench type sanitary landfills. The moderately permeable subsoil limits use of this soil for septic tank absorption fields, and slope limits the use of the soil for playgrounds. This soil is good for use as openland and woodland wildlife habitats. Low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IIIe.

37C3—Hayesville clay loam, 7 to 15 percent slopes, severely eroded. This soil is deep, well drained, and strongly sloping. It is on narrow convex ridgetops and side slopes. Slopes are smooth and about 200 to

400 feet long. Areas of this soil are long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is yellowish red clay loam about 4 inches thick. The subsoil is about 47 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 79 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Braddock, Chester, and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Braddock, Chester, and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. Tilth is fair, and the surface layer breaks into large clods if tilled when too wet or dry. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in permanent pasture. Some areas are farmed, and a few areas are in woodland.

This soil is poorly suited to cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help maintain organic matter content and control erosion. These practices also improve fertility and tilth, reduce crusting, and increase water infiltration and soil-seed contact.

The soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses of this soil. Slope limits community development, and clayey subsoil limits excavations and trench type sanitary landfills. The moderately permeable subsoil limits use of this soil for septic tank absorption fields. Slope limits its use for playgrounds. This soil is good for use as openland and woodland wildlife habitats. The low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass IVe.

37D3—Hayesville clay loam, 15 to 25 percent slopes, severely eroded. This soil is deep, well drained, and moderately steep. It is on side slopes that border small drainageways. Slopes are smooth and about 200 to 400 feet long. Areas of this soil are long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is yellowish red clay loam about 4 inches thick. The subsoil is about 47 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 79 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Chester and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Chester and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in permanent pasture. Some areas are in woodland, and a few areas are being farmed.

This soil is not suited to cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

The slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses. Slope limits use of this soil for building sites, for most sanitary facilities, and for playgrounds. The clayey subsoil limits trench type sanitary landfills. This soil is fair for use as openland wildlife habitat and good for use as woodland wildlife habitat. Slope, low strength, and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIe.

37E3—Hayesville clay loam, 25 to 45 percent slopes, severely eroded. This soil is deep, well drained, and steep. It is on side slopes that border small drainageways. Slopes are smooth and about 200 to 400 feet long. Areas of this soil are long and winding. They range from 3 to about 10 acres.

Typically, the surface layer of this soil is yellowish red clay loam about 4 inches thick. The subsoil is about 47 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 79 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Chester and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Chester and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in woodland. Some areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses. Slope limits use of this soil for building sites, for most sanitary facilities, and for playgrounds. The clayey subsoil limits trench type sanitary landfills. This soil is fair for use as openland and woodland wildlife habitats. Slope, low strength, and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIIe.

38C—Hayesville very stony loam, 7 to 15 percent slopes. This soil is deep, well drained, and strongly sloping. It is on narrow convex ridgetops and side slopes. Stones 3 to 10 feet apart cover 3 to 15 percent of the surface. Slopes are smooth and are about 200 to 600 feet long. Areas of this soil are long and winding. They range from 3 to about 40 acres.

Typically, the surface layer of this soil is strong brown loam about 7 inches thick. The subsoil is about 51 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 83 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Braddock, Chester, and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Braddock, Chester, and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that do not have stones on the surface. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low to moderate. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. Sufficient stones are present to make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses. Slope limits use of this soil for community development and playgrounds. The clayey subsoil limits excavations and trench type sanitary landfills. The moderately permeable subsoil limits use of this soil for septic tank absorption fields. This soil is good for use as openland and woodland wildlife habitats. Low strength and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIs.

38D—Hayesville very stony loam, 15 to 25 percent slopes. This soil is deep, well drained, and moderately steep. It is on side slopes in mountainous areas. Slopes are smooth and about 300 to 1,000 feet long. Stones 3 to 10 feet apart cover 3 to 15 percent of the surface. Areas of this soil are irregular in shape. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is strong brown loam about 7 inches thick. The subsoil is about 51 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 83 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Braddock, Chester, and Cullen soils. The Ashe soils are mostly on the steeper positions and around outcrops of rock. The Braddock, Chester, and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that do not have stones on the surface. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and natural fertility are low to moderate. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. Sufficient stones are present to make use of modern equipment impractical.

This soil is moderately well suited to pasture. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses. Slope limits use of this soil for building sites and for playgrounds. The clayey subsoil limits excavations and trench type sanitary landfills. The moderately permeable subsoil limits use of this soil for septic tank absorption fields. This soil is fair for use as openland wildlife habitat and good for use as woodland wildlife habitat. Slope, low strength, and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIs.

38E—Hayesville very stony loam, 25 to 45 percent slopes. This soil is deep, well drained, and steep. It is on narrow convex ridgetops and side slopes. Slopes are smooth and about 200 to 600 feet long. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are long and winding. They range from 10 to about 50 acres.

Typically, the surface layer of this soil is strong brown loam about 7 inches thick. The subsoil is about 51 inches thick. It is mostly red clay and clay loam. The substratum to a depth of 83 inches or more is multicolored sandy clay loam derived from strongly weathered granite gneiss.

Included with this soil in mapping are intermingled areas of somewhat excessively drained Ashe soils and well drained Chester and Cullen soils. The Ashe soils are mostly on the steep positions and around outcrops of rock. The Chester and Cullen soils are scattered throughout the mapped area. Also included are small areas of soils that do not have stones on the surface. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content and the natural fertility are low to moderate. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is at a depth of more than 5 feet.

Many areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. Steep slopes and stones make use of modern equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface soil, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high. Loblolly pine, shortleaf pine, Virginia pine, yellow-poplar, and oaks do well. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, girdling, and mowing.

Slope, moderate permeability, and clayey subsoil are the main limitations for most nonfarm uses. Slope limits use of this soil for building sites, for most sanitary facilities, and for playgrounds. The clayey subsoil limits trench type sanitary landfills. This soil is fair for use as openland and woodland wildlife habitats. Slope, low strength, and excess fines limit its use as a source of roadfill.

This soil is in capability subclass VIIs.

39C—Hazel loam, 7 to 15 percent slopes. This moderately deep, strongly sloping, excessively drained soil is on ridgetops and side slopes. Areas of this soil are long and winding. They range from about 10 to 50 acres.

Typically, the surface layer is dark brown and brown loam, about 10 inches thick. The subsoil is mostly brown loam about 10 inches thick. The substratum, to a depth of 30 inches, is strong brown channery loam. Bedrock is at a depth of 30 inches.

Included with this soil in mapping are small areas of well drained Albemarle, Culpeper, Glenelg, and Elioak soils. The Albemarle and Glenelg soils are throughout the mapped area. The Culpeper and Elioak soils are on the less sloping positions. Also included are areas of soils that have slopes of less than 7 percent and small areas that have a very stony surface layer. Included soils make up about 20 percent of mapped areas.

Permeability of this soil is moderately rapid. Available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable, and tilth is good. The subsoil has low shrink-swell potential. The root zone extends to a depth of 20 inches. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid. Depth to bedrock ranges from 20 to 40 inches.

Most areas of this soil are in woodland, and a few areas are in pasture.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. If the soil is cultivated, conservation tillage, stubble mulching, use of cover crops, use of grasses and legumes in the cropping system, use of lime and fertilizer according to soil tests, and contour strip cropping help reduce runoff and control erosion.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. This soil is managed for mixed hardwoods and pines. Seeds and seedlings do well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

The slope and depth to bedrock are the main limitations for nonfarm uses. Slope and depth to rock limit use of this soil as a building site and as a site for sanitary facilities. Slope is a limitation for recreational areas. The soil is fair as a source of roadfill.

This soil is in capability subclass IVe.

39D—Hazel loam, 15 to 25 percent slopes. This moderately deep, moderately steep, excessively drained soil is on narrow ridgetops and side slopes. Areas of this soil are wide and winding. They range from about 20 to 75 acres.

Typically, the surface layer is dark brown and brown loam about 10 inches thick. The subsoil is mostly brown loam about 10 inches thick. The substratum to a depth of 30 inches is strong brown channery loam. Bedrock is at a depth of 30 inches.

Included with this soil in mapping are small areas of well drained Albemarle, Culpeper, Glenelg, and Elioak soils. The Albemarle and Glenelg soils are throughout the mapped area. The Culpeper and Elioak soils are on the less sloping positions. Also included are small areas of soils that have a very stony surface layer. Included soils make up about 20 percent of mapped areas.

Permeability of this soil is moderately rapid. Available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 20 inches. The organic matter content and natural fertility are low. This soil commonly is strongly acid or very strongly acid. The depth to bedrock ranges from 20 to 40 inches.

Most areas of this soil are in woodland, and a few areas are in pasture.

This soil is not suited to cultivated crops. The low available water capacity restricts plant growth.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees is moderate. This soil is managed for mixed hardwoods and pines. Seeds and seedlings do fairly well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits the safe operation of heavy equipment.

The slope and depth to rock are the main limitations for nonfarm uses. They limit the use of this soil as a building site or a site for sanitary facilities. Slope is a limitation for recreational areas. This soil is fair as a source for roadfill.

This soil is in capability subclass VIe.

39E—Hazel loam, 25 to 45 percent slopes. This moderately deep, steep, excessively drained soil is on side slopes. Areas of this soil are wide and winding. They range from about 30 to 100 acres.

Typically, the surface layer is dark brown and brown loam, about 10 inches thick. The subsoil is mostly brown loam about 10 inches thick. The substratum to a depth of 30 inches is strong brown channery loam. Bedrock is at a depth of 30 inches.

Included with this soil in mapping are small areas of well drained Culpeper and Elioak soils, well drained to excessively drained Louisburg soils, and somewhat excessively drained Manor soils. The Culpeper and Elioak soils are on the less sloping positions, are commonly severely eroded, and have a clay loam surface layer. The Louisburg and Manor soils are throughout the mapped area. Also included are small areas of soils that have a very stony surface layer. Included soils make up 20 percent of mapped areas.

Permeability of this soil is moderately rapid. Available water capacity is low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 20 inches. The organic matter content and natural fertility are low. This soil commonly is strongly acid or very strongly acid. Depth to bedrock ranges from 20 to 40 inches.

Most areas of this soil are in woodland, and a few areas are in pasture.

This soil is not suited to hay and cultivated crops. The steep slopes make use of modern equipment impractical.

This soil is poorly suited to pasture. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. This soil is managed for mixed hardwoods and pines. Seeds and seedlings do fairly well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits the safe operation of heavy equipment.

The slope and depth to rock are the main limitations for nonfarm uses. These limit the use of this soil as a building site or a site for sanitary facilities. Slope is a limitation for recreational areas. This soil is poor as a source of roadfill because of the steep slope.

This soil is in capability subclass VIIe.

40D—Hazel very stony loam, 15 to 25 percent slopes. This moderately deep, moderately steep, excessively drained soil is on narrow ridgetops and side slopes. Stones, 3 to 10 feet apart, cover about 3 to 15 percent of the surface. Areas of this soil are wide and winding. They range from about 30 to 100 acres.

Typically, the surface layer is dark brown and brown loam about 10 inches thick. The subsoil is mostly brown loam about 10 inches thick. The substratum to a depth of 30 inches is strong brown channery loam. Bedrock is at a depth of 30 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Culpeper soils, well drained to excessively drained Louisburg soils, and somewhat excessively drained Manor soils. The Albemarle and Culpeper soils are on the less sloping positions, commonly are severely eroded, and have a clay loam surface. The Louisburg and Manor soils are throughout the mapped area. Also included are small areas of soils that do not have stones on the surface and small areas that have slopes of less than 15 percent. Included soils make up about 20 percent of mapped areas.

Permeability is moderately rapid. Available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content and natural fertility are low. This soil commonly is strongly acid or very strongly acid. The depth to bedrock ranges from 20 to 40 inches.

Most areas of this soil are in woodland, and a few areas are in pasture.

This soil is not suited to cultivated crops and hay. Stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture.

Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. This soil is managed for mixed hardwoods and pines. Seeds and seedlings do fairly well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits the safe operation of heavy equipment.

Slope, depth to rock, and large stones are the main limitations for nonfarm uses. These limit this soil as a building site or a site for sanitary facilities. Slope and large stones are limitations for recreational development. Large stones limit use of this soil as a source of topsoil. This soil is a fair source of roadfill.

This soil is in capability subclass VIs.

40E—Hazel very stony loam, 25 to 45 percent slopes. This moderately deep, steep, excessively drained soil is on side slopes. Stones, 3 to 10 feet apart, cover about 3 to 15 percent of the surface. Areas of this soil are wide and winding. They range from about 30 to 100 acres.

Typically, the surface layer is dark brown and brown loam about 10 inches thick. The subsoil is mostly brown loam about 10 inches thick. The substratum to a depth of 30 inches is strong brown channery loam. Bedrock is at a depth of 30 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Culpeper soils, well drained to excessively drained Louisburg soils, and somewhat excessively drained Manor soils. The Albemarle and Culpeper soils are on the less sloping positions, commonly are severely eroded, and have a clay loam surface layer. The Louisburg and Manor soils are throughout the mapped area. Also included are small areas of soils that do not have stones on the surface. Included soils make up about 20 percent of mapped areas.

Permeability is moderate. Available water capacity is low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid. Depth to bedrock ranges from 20 to 40 inches.

Most areas of this soil are in woodland, and a few areas are in pasture.

This soil is not suited to cultivated crops and hay. Stones on the surface and slope make use of modern equipment impractical.

This soil is poorly suited to pasture. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. This soil is managed for mixed hardwoods and pines. Seeds and seedlings do fairly well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits the safe operation of heavy equipment.

Slope, depth to rock, and large stones are the main limitations for nonfarm uses. These limit use of this soil as a building site or a site for sanitary facilities. Slope and large stones are limitations for recreational development. Large stones limit use of this soil as a source of topsoil. This soil is a poor source of roadfill because of slope.

This soil is in capability subclass VIIs.

41B—Hiwassee loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on high terraces along larger streams. Slopes are smooth and about 200 to 600 feet long. Areas of this soil are irregular in shape. They range from 5 to about 15 acres.

Typically, the surface layer of this soil is dark reddish brown loam about 8 inches thick. The upper 39 inches of the subsoil is dark red clay. The lower part of the subsoil to a depth of 64 inches or more is dark red silty clay loam and has brownish yellow mottles (fig. 8).

Included with this soil in mapping are small areas of well drained Masada, Totier, and Turbeville soils. These soils are throughout the mapped area. Also included are small areas of soils that have slopes of less than 2 percent and of severely eroded soils that have a clay loam surface layer. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is slightly acid to very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in cultivated cropland.

This soil is well suited to cultivated crops, pasture, and hay. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture.

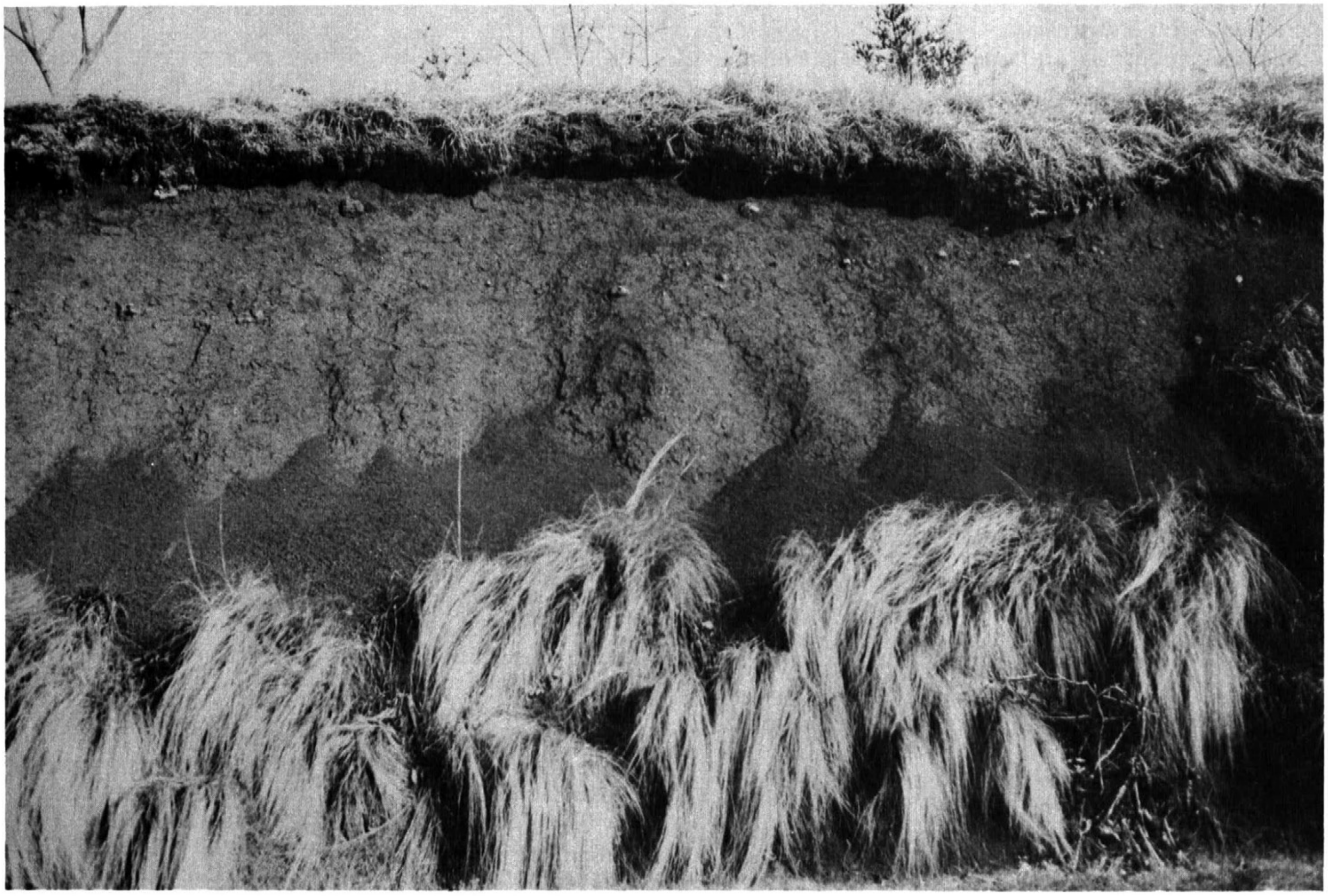

Figure 8.—A road cut in Hiwassee loam, 2 to 7 percent slopes. Soil retained near the top of the cut and sediment retained near the bottom are the result of plant cover.

Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. The soil is managed for pines and hardwood. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The low strength and the moderately permeable, clayey subsoil are the main limitations for nonfarm uses. Low strength and the clayey subsoil limit use of this soil as a building site. The clayey, moderately permeable subsoil limits some sanitary facilities. Slope is a limitation for playgrounds.

This soil is in capability subclass IIe.

41C—Hiwassee loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on side slopes of high terraces along larger streams. Slopes are smooth and about 300 to 600 feet long. Areas of this soil are irregular in shape. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark reddish brown loam about 8 inches thick. The upper 39 inches of the subsoil is dark red clay. The lower part of the subsoil to a depth of 60 inches or more is dark red silty clay loam and has brownish yellow mottles.

Included with this soil in mapping are small areas of well drained Rapidan, Totier, and Turbeville soils. These soils are throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer and of severely eroded soils that have a clay loam surface layer. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is slightly acid to very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. They are in cultivated crops. A few areas are in woodland.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. The soil is managed for pines and hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Low strength, moderately permeable, clayey subsoil, and slope are the main limitations for nonfarm uses. Low strength, slope, and a clayey subsoil limit use of this soil as a building site. The moderately permeable, clayey subsoil and slope are limitations for most sanitary facilities. Slope is a limitation for recreational development.

This soil is in capability subclass IIIe.

42B3—Hiwassee clay loam, 2 to 7 percent slopes, severely eroded. This deep, gently sloping, well drained soil is on high terraces along larger streams. Slopes are smooth and about 300 to 600 feet long. Areas of this soil are irregular in shape. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 4 inches thick. The upper 35 inches of the subsoil is dark red clay. The lower part of the subsoil to a depth of 60 inches or more is dark red silty clay loam and has brownish yellow mottles.

Included with this soil in mapping are small areas of well drained Rapidan, Totier, and Turbeville soils. These soils are throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer. Included soils make up about 15 percent of mapped areas.

Permeability and the available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. The surface layer is firm, and tilth is fair. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and natural fertility is medium. This soil commonly is slightly acid to very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in cultivated cropland.

This soil is moderately well suited to cultivated crops. The moderate hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. The soil is managed for pines and hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Low strength and moderately permeable, clayey subsoil are the main limitations for nonfarm uses. Low strength and the clayey subsoil limit use of this soil as a building site. The clayey, moderately permeable subsoil is a limitation for some sanitary facilities. Slope is a limitation for playgrounds.

This soil is in capability subclass IIIe.

42C3—Hiwassee clay loam, 7 to 15 percent slopes, severely eroded. This deep, strongly sloping, well drained soil is on side slopes of high terraces along larger streams. Slopes are smooth and about 300 to 600 feet long. Areas of this soil are irregular in shape. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 4 inches thick. The upper 35 inches of the subsoil is dark red clay. The lower part of the subsoil to a depth of 60 inches or more is dark red silty clay loam and has brownish yellow mottles.

Included with this soil in mapping are small areas of well drained Rapidan, Totier, and Turbeville soils. These soils are throughout the mapped area. Also included are small areas of soils that have a gravelly or cobbly surface layer. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is firm, and tilth is fair. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is slightly acid to very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. They are in cultivated crops. A few acres are in woodland.

This soil is poorly suited to cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. The soil is managed for pines and hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Low strength, moderately permeable, clayey subsoil, and slope are the main limitations for nonfarm uses. Low strength, slope, and a clayey subsoil limit use of this soil as a building site. The moderately permeable, clayey subsoil and slope are limitations for most sanitary facilities.

This soil is in capability subclass IVe.

42D3—Hiwassee clay loam, 15 to 25 percent slopes, severely eroded. This deep, moderately steep, well drained soil is on side slopes of high terraces along larger streams. Slopes are smooth and about 200 to 500 feet long. Areas of this soil are long and narrow. They range from 5 to about 15 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 4 inches thick. The upper 35 inches of the subsoil is dark red clay. The lower part of the subsoil to a depth of 60 inches or more is dark red silty clay loam and has brownish yellow mottles.

Included with this soil in mapping are small areas of well drained Masada, Rapidan, Totier, and Turbeville soils. These soils are throughout the mapped area. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is slightly acid to very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in pasture. A few areas are in woodland.

This soil is not suited to cultivated crops. Because of past erosion the surface layer is firm and tilth is poor.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. The soil is managed for pines and hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

The slope is the main limitation for nonfarm uses. Slope limits use of this soil as a building site, for most sanitary facilities, and for recreational development.

This soil is in capability subclass VIe.

43B—Klinesville channery silt loam, 2 to 7 percent slopes. This shallow, gently sloping, well drained soil is on narrow, convex ridgetops and points of ridges. Slopes are smooth and 100 to 300 feet long. Areas of this soil commonly are irregularly rounded or elongated. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is reddish brown channery silt loam about 4 inches thick. The subsoil is dark red very channery silt loam about 6 inches thick. The substratum to a depth of 14 inches is reddish brown very channery silt loam. Rippable shale bedrock is at a depth of 14 inches.

Included with this soil in mapping are small areas of moderately well drained to well drained Manassas soils and well drained Penn soils. The Manassas soils are in depressions and along small drainageways. The Penn soils are throughout the mapped area. Included soils make up about 15 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is medium. The hazard of erosion is moderate. Tilth is good. The subsoil has low shrink-swell potential. The root zone is restricted to a depth of less than 20 inches by bedrock. The organic matter content and the natural fertility are low. This soil commonly is medium acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of less than 20 inches.

Most areas of this soil are in pasture or woodland.

This soil is moderately well suited to cultivated crops. It is droughty during the growing season, and crop response to lime and fertilizer is limited by the lack of moisture. Alfalfa is short lived because of the shallow rooting depth. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. Seeds and seedlings are affected by droughtiness during the growing season. Loblolly pine and Virginia pine do well on this soil.

Depth to bedrock and seepage are the main limitations for nonfarm uses. The depth to bedrock limits use of this soil as a building site and for recreational development. Seepage and depth to bedrock limit most sanitary facilities. The depth to bedrock limits use of the soil as a source of roadfill. The soil is poor for use as openland wildlife habitat and very poor for use as woodland wildlife habitat.

This soil is in capability subclass IIIe.

43C—Klinesville channery silt loam, 7 to 15 percent slopes. This shallow, strongly sloping, well drained soil is on convex side slopes and the points of ridges. Slopes are smooth and 200 to 600 feet long. Areas of this soil commonly are irregular in shape or are long and winding. They range from 3 to about 25 acres.

Typically, the surface layer of this soil is reddish brown channery silt loam about 4 inches thick. The subsoil is dark red very channery silt loam about 6 inches thick. The substratum to a depth of 14 inches is reddish brown very channery silt loam. Rippable shale bedrock is at a depth of 14 inches.

Included with this soil in mapping are small areas of moderately well drained to well drained Manassas soils and well drained Penn soils. The Manassas soils are in depressions and along small drainageways. The Penn soils are throughout the mapped area. Included soils make up about 15 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. Tilth is good. The subsoil has low shrink-swell potential. The root zone is restricted to a depth of less than 20 inches by bedrock. The organic matter content and the natural fertility are low. This soil commonly is medium acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of less than 20 inches.

Most areas of this soil are in pasture or woodland.

This soil is poorly suited to cultivated crops. It is droughty during the growing season, and crop response to lime and fertilizer is limited by the lack of moisture. Alfalfa is short lived because of the shallow rooting depth. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. Seeds and seedlings are affected by droughtiness during the growing season. Loblolly pine and Virginia pine do well on this soil.

Slope, depth to bedrock, and seepage are the main limitations for nonfarm uses. The depth to bedrock limits use of this soil as a building site and for recreational development. The slope, seepage, and the depth to bedrock limit most sanitary facilities. The depth to bedrock limits use of the soil as a source of roadfill. The soil is poor for use as openland wildlife habitat and very poor for use as woodland wildlife habitat.

This soil is in capability subclass IVe.

43D—Klinesville channery silt loam, 15 to 25 percent slopes. This shallow, moderately steep, well drained soil is on convex side slopes. Slopes are smooth and 200 to 400 feet long. Areas of this soil commonly are long and winding. They range from 3 to about 25 acres.

Typically, the surface layer of this soil is reddish brown channery silt loam about 4 inches thick. The subsoil is dark red very channery silt loam about 6 inches thick. The substratum to a depth of 14 inches is reddish brown very channery silt loam. Rippable shale bedrock is at a depth of 14 inches.

Included with this soil in mapping are small areas of well drained Penn soils. The Penn soils are throughout the mapped area. Included soils make up about 10 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone is restricted to a depth of less than 20 inches by bedrock. The organic matter content and the natural fertility are low. This soil commonly is medium acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of less than 20 inches.

Most areas of this soil are in pasture and woodland.

This soil is not suited to cultivated crops. The hazard of erosion is a major management concern. The soil is droughty during the growing season, and plant response to lime and fertilizer is limited by the lack of moisture. Alfalfa is short lived because of the shallow rooting depth.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. Seeds and seedlings are affected by droughtiness during the growing season. Loblolly pine and Virginia pine do well on this soil.

Slope, depth to bedrock, and seepage are the main limitations for nonfarm uses. The slope and depth to rock limit use of the soil as a building site and for recreational development. Slope, seepage, and the depth to bedrock limit most sanitary facilities. The depth to bedrock limits use of the soil as a source of roadfill. The soil is poor for use as openland wildlife habitat and very poor for use as woodland wildlife habitat.

This soil is in capability subclass VIe.

43E—Klinesville channery silt loam, 25 to 45 percent slopes. This shallow, steep, well drained soil is on side slopes along drainageways and bluffs along streams. Slopes are smooth and 200 to 400 feet long. Areas of this soil commonly are long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is reddish brown channery silt loam about 4 inches thick. The subsoil is dark red very channery silt loam about 6 inches thick. The substratum to a depth of 14 inches is reddish brown very channery silt loam. Rippable shale bedrock is at a depth of 14 inches.

Included with this soil in mapping are small areas of well drained Penn soils. The Penn soils are throughout the mapped area. Also included are small areas of outcrops of rock and small areas of gullied soils. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone is restricted to a depth of less than 20 inches by bedrock. The organic matter content and the natural fertility are low. This soil commonly is medium acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of less than 20 inches.

Most areas of this soil are in woodland.

This soil is not suited to cultivated crops. The soil is droughty during the growing season, and plant response to lime and fertilizer is limited by the lack of moisture. Alfalfa is short lived because of the shallow rooting depth.

This soil is poorly suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. Seeds and seedlings are affected by droughtiness during the growing season. Loblolly pine and Virginia pine do well on this soil.

Slope, depth to bedrock, and seepage are the main limitations for nonfarm uses. Slope and depth to bedrock limit use of this soil as a building site and for recreational development. Slope, seepage, and depth to bedrock are limitations for most sanitary facilities. Depth to bedrock and slope limit use of the soil as a source for roadfill. This soil is poor for use as openland wildlife habitat and very poor for use as woodland wildlife habitat.

This soil is in capability subclass VIIe.

44C—Lew very stony silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on concave side slopes along drainageways and small depressions. Slopes are smooth and 100 to 600 feet long. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil commonly are long and winding and range from 5 to more than 30 acres.

Typically, the surface layer of this soil is dark brown and brown channery silt loam about 7 inches thick. The subsoil is about 53 inches thick. It is yellowish red channery and very channery silty clay loam above a depth of 30 inches and strong brown very channery silty clay loam below a depth of 30 inches.

Included with this soil in mapping are areas of Unison soils, generally less than 3 acres. The Unison soils are throughout the mapped area. Also included are small areas of soils that have an extremely stony surface layer. Included soils make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable, but tillage is impractical because of stones. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid or strongly acid

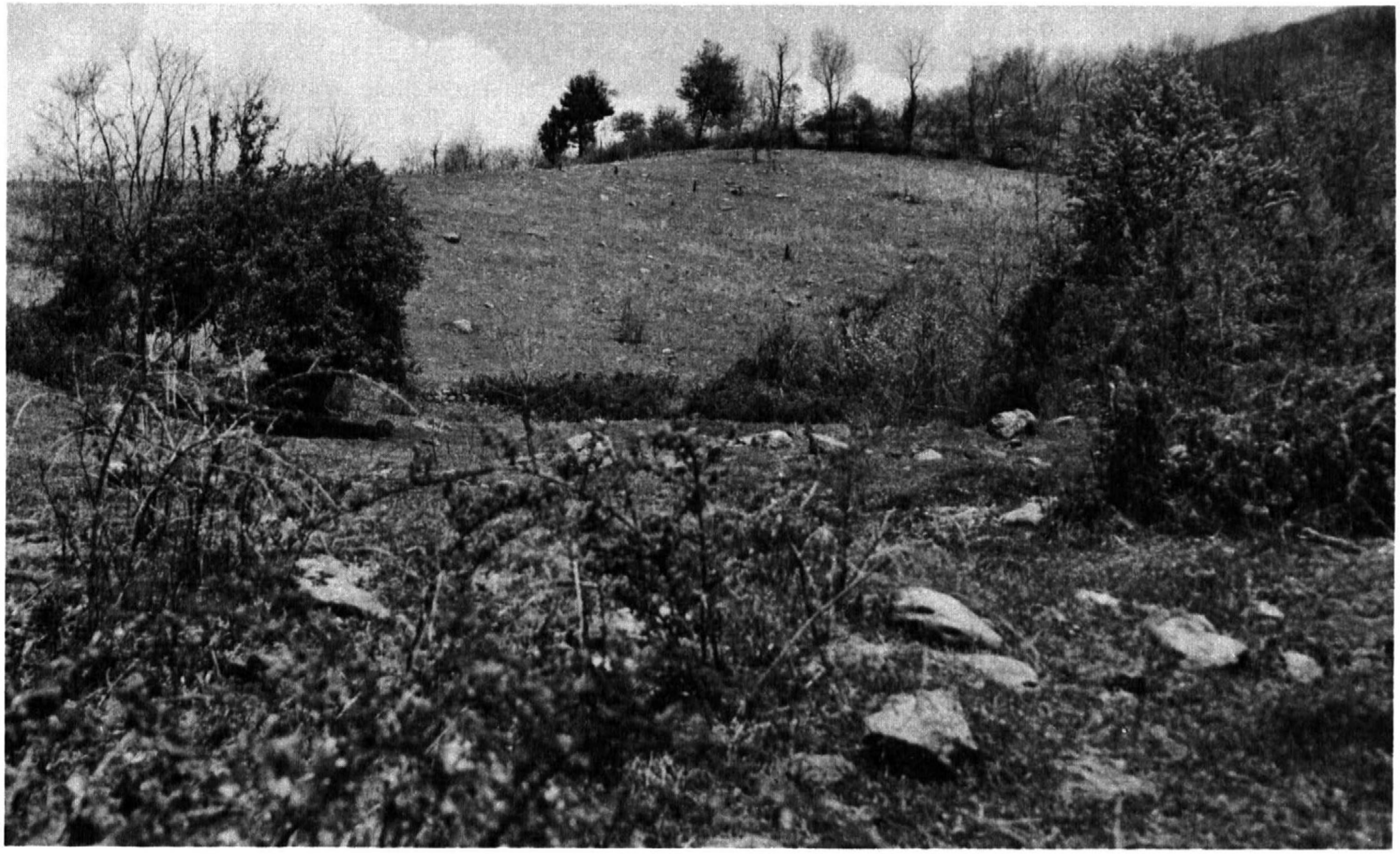

Figure 9.—Lew very stony silt loam, 7 to 15 percent slopes, in foreground and Myersville very stony silt loam, 15 to 25 percent slopes, on side slopes in background.

throughout, unless limed. Depth to bedrock is generally more than 60 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. Large stones on the surface make use of modern equipment impractical (fig. 9).

This soil is moderately well suited to pasture. When lime and fertilizer are applied according to soil tests, pasture crops respond well. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, and controlled grazing help increase the carrying capacity of pasture and help control erosion. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Large stones are the main limitation for nonfarm uses. They limit the use of this soil for sanitary facilities, for building site development, as a source of roadfill, and for most recreational uses.

This soil is in capability subclass VIs.

44D—Lew very stony silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on concave side slopes along drainageways. Slopes are smooth and 100 to 600 feet long. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil commonly are long and winding and range from 5 to more than 30 acres.

Typically, the surface layer of this soil is dark brown and brown channery silt loam about 7 inches thick. The subsoil is about 53 inches thick. It is yellowish red channery and very channery silty clay loam above a depth of 30 inches and strong brown very channery silty clay loam below a depth of 30 inches.

Included with this soil in mapping are areas of Unison soils, generally less than 3 acres. The Unison soils are throughout the mapped area. Also included are small areas of soils that have an extremely stony surface layer. Included soils make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable, but tillage is impractical because of stones. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid or strongly acid throughout, unless limed. Depth to bedrock is generally more than 60 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. Large stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture. When lime and fertilizer are applied according to soil tests, pasture crops respond well. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, and controlled grazing help increase the carrying capacity of pasture and help control erosion. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Large stones and slope are the main limitations for nonfarm uses. They limit the use of this soil for sanitary facilities, for building site development, as a source of roadfill, and for most recreational uses.

This soil is in capability subclass VIs.

45C—Lew extremely stony silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on concave side slopes along drainageways. Slopes are smooth and 100 to 600 feet long. Stones, 1/2 foot to 3 feet apart, cover 15 to 50 percent of the surface. Areas of this soil commonly are long and winding and range from 5 to more than 30 acres.

Typically, the surface layer of this soil is dark brown and brown channery silt loam about 7 inches thick. The subsoil is about 53 inches thick. It is yellowish red channery and very channery silty clay loam above a depth of 30 inches and strong brown very channery silty clay loam below a depth of 30 inches.

Included with this soil in mapping are areas of Unison soils, generally less than 3 acres. The Unison soils are throughout the mapped area. Also included are small areas of soils that have a very stony surface layer. Included soils make up about 15 percent of mapped areas.

Permeability is moderate, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable, but tillage is impractical because of stones. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid or strongly acid throughout, unless limed. Depth to bedrock is generally more than 60 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. Large stones on the surface make use of modern tillage equipment impractical.

This soil is poorly suited to pasture. When lime and fertilizer are applied according to soil tests, pasture crops respond well. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, and controlled grazing help increase the carrying capacity of pasture and help control erosion. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Large stones are the main limitation for nonfarm uses. Large stones limit use of this soil for sanitary facilities, for building site development, as a source of roadfill, and for most recreational uses.

This soil is in capability subclass VIIs.

45D—Lew extremely stony silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on concave side slopes along drainageways in the Blue Ridge. Slopes are smooth and 100 to 600 feet long. Stones, 1/2 foot to 3 feet apart, cover 15 to 50 percent of the surface. Areas of this soil commonly are long and winding and range from 5 to more than 30 acres.

Typically, the surface layer of this soil is dark brown and brown channery silt loam about 7 inches thick. The subsoil is about 53 inches thick. It is yellowish red channery and very channery silty clay loam above a depth of 30 inches and strong brown very channery silty clay loam below this depth.

Included with this soil in mapping are areas of Unison soils, generally less than 3 acres. The Unison soils are throughout the mapped area. Also included are small areas of soils that have a very stony surface layer. Included soils make up about 10 percent of mapped areas.

Permeability is moderate, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable, but tillage is impractical because of stones. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid or strongly acid throughout, unless limed. Depth to bedrock is generally more than 60 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. Large stones on the surface make use of modern equipment impractical.

This soil is poorly suited to pasture. When lime and fertilizer are applied according to soil tests, pasture crops respond well. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, and controlled grazing help increase the carrying capacity of pasture and help to control erosion. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Slope and large stones are the main limitations for nonfarm uses. They limit the use of this soil for sanitary facilities, for building site development, as a source of roadfill, and for most recreational uses.

This soil is in capability subclass VIIs.

46B—Lignum silt loam, 2 to 7 percent slopes. This deep, gently sloping, moderately well drained to somewhat poorly drained soil is in depressions, on foot slopes, and along small drainageways. Slopes are smooth and commonly concave. Areas of this soil are elongated, irregularly oval, or rectangular. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is very pale brown silt loam about 9 inches thick. The subsoil is 29 inches thick. To a depth of 25 inches, the subsoil is brownish yellow silty clay loam and has light gray mottles. To a depth of 38 inches, it is mostly brownish yellow silty clay and has light gray mottles. The substratum is yellow, brown, gray, and black strongly weathered schist that crushes easily to silt loam. Hard schist bedrock is at a depth of 58 inches.

Included with this soil in mapping are small areas of moderately well drained Abell soils, well drained Nason soils, and poorly drained Worsham soils. The Abell soils are along small drainageways and on foot slopes. The Nason soils are on the higher positions. The Worsham soils are on toe slopes and along small drainageways. Included soils make up about 15 percent of mapped areas.

Permeability is moderately slow to slow, and available water capacity is moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of at least 25 inches. The organic matter content and the natural fertility are low. The surface layer and subsoil commonly are strongly acid to very strongly acid, but reaction in the surface layer is variable because of local liming. The seasonal high water table is at a depth of 1 foot to 2 1/2 feet during winter and early in spring. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland. Some areas are farmed, and some areas are in pasture.

This soil is moderately well suited to cultivated crops. Deep-rooted crops are commonly stunted or short lived because of wetness. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, sweetgum, and oaks do moderately well on this soil. The soil is soft when wet, limiting the use of heavy equipment. Windthrow causes some losses when the soil is wet because of the limited rooting depth above the perched water table.

The shallow depth to the seasonal high water table, the slowly permeable, clayey subsoil, the depth to rock, and the low strength are the main limitations for nonfarm uses. The seasonal high water table causes dampness in basements and crawlspaces in winter and spring and limits use of this soil as a site for most sanitary facilities. Many of the areas dry out slowly in spring and after heavy rains. The slowly permeable subsoil limits use of the soil for septic tank absorption fields, and the soil needs a suitable base material to provide strength to support vehicular traffic.

This soil is in capability subclass IIIw.

47C—Louisburg sandy loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained to excessively drained soil is on convex ridgetops, on points of ridges, and on side slopes. Areas of this soil are irregularly oblong. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is brown sandy loam about 5 inches thick. The subsoil is yellowish brown sandy loam about 18 inches thick. The substratum is mostly brown and yellow partially weathered bedrock that crushes to sandy loam to a depth of about 60 inches.

Included with this soil in mapping are small areas of well drained Albemarle, Pacolet, and Wedowee soils and excessively drained Hazel soils. The Albemarle, Pacolet, and Wedowee soils are mostly on ridges and the less steep positions. The Hazel soils are scattered throughout the mapped area. Also included are small areas of soils that have a very stony surface layer. Included soils make up about 25 percent of mapped areas.

Permeability is rapid, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled through a wide range of soil moisture. The subsoil has very low shrink-swell potential. The root zone extends to a depth of about 40 inches. The organic matter content and the natural fertility are low. This soil is strongly acid or very strongly acid throughout, but reaction is variable because of local liming. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland.

This soil is poorly suited to cultivated crops. It is droughty during the growing season, and response to lime and fertilizer is limited by the low available water capacity. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by drought during the growing season. Thinning stands, clear cutting, replanting with fast-growing trees, and removal of insect- or disease-infested trees help increase timber production.

Slope, seepage, and depth to bedrock are the main limitations for nonfarm uses. Depth to bedrock and slope limit use of this soil as a building site and as a site for septic tank absorption fields. Seepage limits the use of this soil for sanitary landfills. Depth to bedrock and slope limit excavations. The low available water capacity limits the growth of grasses and shrubs. This soil is a good source of roadfill.

This soil is in capability subclass IVe.

47D—Louisburg sandy loam, 15 to 25 percent slopes. This deep, moderately steep, well drained to excessively drained soil is on convex ridgetops, on points of ridges, and on side slopes. Areas of this soil are slightly elongated or long and winding. They range from 10 to about 40 acres.

Typically, the surface layer of this soil is brown sandy loam about 5 inches thick. The subsoil is yellowish brown sandy loam about 18 inches thick. The substratum is mostly brown and yellow partially weathered bedrock that crushes to sandy loam to a depth of about 60 inches.

Included with this soil in mapping are small areas of well drained Albemarle, Pacolet, and Wedowee soils and excessively drained Hazel soils. The Albemarle, Pacolet, and Wedowee soils are mostly on ridges. The Hazel soils are scattered throughout the mapped area. Also included are small areas of soils that have a very stony surface layer. Included soils make up about 25 percent of mapped areas.

Permeability is rapid, and the available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled through a wide range of soil moisture. The subsoil has very low shrink-swell potential. The root zone extends to a depth of about 40 inches. The organic matter content and natural fertility are low. This soil is strongly acid or very strongly acid throughout, but reaction is variable because of local liming. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland.

This soil is not suited to cultivated crops. It is droughty during the growing season, and response to lime and fertilizer is limited by the low available water capacity.

This soil is poorly suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of equipment.

The slope and seepage are the main limitations for nonfarm uses. Slope limits use of this soil as a building site and as a site for septic tank absorption fields. Seepage limits use of the soil for sanitary landfills. Slope limits excavations. The low available water capacity limits the growth of grasses and shrubs. This soil is a fair source of roadfill.

This soil is in capability subclass VIe.

47E—Louisburg sandy loam, 25 to 45 percent slopes. This deep, steep, well drained to excessively drained soil is on points of ridges and on side slopes. Areas of this soil are slightly elongated or long and winding. They range from 10 to about 50 acres.

Typically, the surface layer of this soil is brown sandy loam about 5 inches thick. The subsoil is yellowish brown sandy loam about 18 inches thick. The substratum is mostly brown and yellow partially weathered bedrock that crushes to sandy loam to a depth of about 60 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Wedowee soils and excessively drained Hazel soils. The Albemarle and Wedowee soils are mostly on ridges. The Hazel soils are scattered throughout the mapped area. Also included are small areas of soils that have a very stony surface layer. Included soils make up about 25 percent of mapped areas.

Permeability is rapid, and available water capacity is low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has very low shrink-swell potential. The root zone extends to a depth of about 40 inches. The organic matter content and the natural fertility are low. This soil is strongly acid or very strongly acid throughout. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. The slopes are too steep for safe use of modern equipment. The soil is droughty during the growing season.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. Slope limits safe operation of equipment.

Slope and seepage are the main limitations for nonfarm uses. Slope limits use of the soil as a building site and as a site for septic tank absorption fields. Seepage limits use of the soil as a site for sanitary landfills. Slope and depth to bedrock limit excavations. The low available water capacity limits the growth of grasses and shrubs. The soil is a poor source of roadfill because of slope.

This soil is in capability subclass VIIe.

48D—Louisburg very stony sandy loam, 15 to 25 percent slopes. This deep, moderately steep, well drained to excessively drained soil is on convex ridgetops, on points of ridges, and on side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are slightly elongated or long and winding. They range from 10 to about 40 acres.

Typically, the surface layer of this soil is brown sandy loam about 5 inches thick. The subsoil is yellowish brown sandy loam about 18 inches thick. The substratum is mostly brown and yellow partially weathered bedrock that crushes to sandy loam to a depth of about 60 inches.

Included with this soil in mapping are small areas of well drained Albemarle and excessively drained Hazel soils. The Albemarle soils are mostly on ridges. The Hazel soils are scattered throughout the mapped area. Also included are small areas of soils that do not have stones on the surface and small areas that have slopes of less than 15 percent. Included soils make up about 25 percent of mapped areas.

Permeability is rapid, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has very low shrink-swell potential. The root zone extends to a depth of about 40 inches. The organic matter content and the natural fertility are low. This soil is strongly acid or very strongly acid throughout, but reaction is variable because of local liming. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. Large stones on the surface make the use of modern equipment impractical. The soil is droughty during the growing season, and response to lime and fertilizer is limited by the low available water capacity.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of equipment.

Slope, large stones, and seepage are the main limitations for nonfarm uses. Slope limits use of this soil as sites for buildings and septic tank absorption fields. Large stones and seepage limit use of the soil as a site for sanitary landfills. Slope limits excavations. The low available water capacity limits the growth of grasses and shrubs. This soil is a fair source of roadfill.

This soil is in capability subclass VIIs.

48E—Louisburg very stony sandy loam, 25 to 45 percent slopes. This deep, steep, well drained to excessively drained soil is on points of ridges and on side slopes of Piedmont uplands. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are slightly elongated or long and winding. They range from 10 to about 50 acres.

Typically, the surface layer of this soil is brown sandy loam about 5 inches thick. The subsoil is yellowish brown sandy loam about 18 inches thick. The substratum is mostly brown and yellow, partially weathered bedrock that crushes to sandy loam to a depth of about 60 inches.

Included with this soil in mapping are small areas of well drained Albemarle soils and excessively drained Hazel soils. The Albemarle soils are mostly on ridges. The Hazel soils are scattered throughout the mapped area. Also included are small areas of soils that do not have stones on the surface. Included soils make up about 25 percent of mapped areas.

Permeability is rapid, and available water capacity is low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has very low shrink-swell potential. The root zone extends to a depth of about 40 inches. The organic matter content and the natural fertility are low. This soil is strongly acid or very strongly acid throughout. Bedrock is generally at a depth of more than 48 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay or cultivated crops. Large stones and steep slopes make use of modern equipment impractical. The soil is droughty during the growing season.

This soil is poorly suited to pasture. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine and Virginia pine. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff to help control erosion. Slope limits safe operation of heavy equipment.

Slope, large stones, and seepage are the main limitations for nonfarm uses. Slope limits use of this soil as a site for buildings and septic tank absorption fields. Large stones and seepage limit use of the soil as a site for sanitary landfills. Slope limits excavations. The low available water capacity limits the growth of grasses and shrubs. This soil is a poor source of roadfill because of slope.

This soil is in capability subclass VIIs.

49B—Manassas silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained to moderately well drained soil is on foot slopes, in depressions, and along small drainageways. Slopes are smooth, slightly concave, and about 100 to 400 feet long. Most areas of this soil are long and winding. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 18 inches thick. The subsoil, about 22 inches thick, to a lithological discontinuity, is mostly yellowish red and red clay loam and brown silty clay loam. The subsoil to a depth of 64 inches is mostly yellowish red shaly silty clay.

Included with this soil in mapping are small areas of well drained Bermudian and Starr soils and moderately well drained to somewhat poorly drained Creedmoor and Rowland soils. The Bermudian and Rowland soils are along streams on flood plains. The Creedmoor and Starr soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer. Included soils make up about 20 percent of mapped areas.

Permeability is moderate to moderately rapid, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled through a wide range of soil moisture. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is strongly acid to medium acid throughout, but reaction in the surface layer is variable because of local liming. Flooding is occasional. A seasonal high water table is at a depth of 2 to 3 feet during winter and spring. Bedrock is generally at a depth of more than 4 feet.

Most areas of this soil are farmed. Some areas are in pasture, and a few areas are in woodland.

This soil is well suited to cultivated crops. Moderate hazard of erosion, occasional flooding, and runoff from higher lying areas are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing and grazing when the soil is wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is high, especially for loblolly pine, yellow-poplar, sweetgum, and oaks. Seeds and seedlings survive and grow well.

The seasonal high water table, occasional flooding, low strength, and moderate to moderately rapid permeability of the subsoil are the main limitations for nonfarm uses. The low strength and seasonal high water table limit use of this soil for local roads and streets and as a building site. The moderate to moderately rapid permeability of the subsoil, occasional flooding, and the seasonal water table are limitations for most sanitary facilities. Slope is a limitation for playgrounds. The low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIe.

50D—Manor loam, 15 to 25 percent slopes. This deep, moderately steep, well drained to somewhat excessively drained soil is on side slopes. Slopes are smooth and about 100 to 400 feet long. Areas of this soil are short and winding. They range from about 5 to 15 acres.

Typically, the surface layer is dark grayish brown and brown loam about 8 inches thick. The subsoil is mostly yellowish red loam about 10 inches thick. The substratum to a depth of 40 inches is strong brown loam and to a depth of 60 inches or more is multicolored yellowish brown, yellow, and strong brown loam.

Included with this soil in mapping are small areas of well drained Elioak and Glenelg soils and excessively drained Hazel soils. The Elioak soils are on the less steep positions. The Glenelg and Hazel soils are throughout the mapped area. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The surface layer of this soil is friable, and tilth is good. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low to moderate, and the natural fertility is low. This soil commonly is strongly acid to very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland, and a few areas are in pasture.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Minimum tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and poorly suited to hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. This soil is managed for pines and hardwoods. Seeds and seedlings do well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope is the main limitation for nonfarm uses. Slope limits use of this soil as sites for buildings, sanitary facilities, and recreational development. The soil is a fair source of roadfill.

This soil is in capability subclass IVe.

50E—Manor loam, 25 to 45 percent slopes. This deep, steep, well drained to somewhat excessively drained soil is on side slopes. Slopes are smooth and about 100 to 400 feet long. Areas of this soil are short and winding. They range from about 5 to 15 acres.

Typically, the surface layer is dark grayish brown and brown loam about 8 inches thick. The subsoil is mostly yellowish red loam about 10 inches thick. The substratum, to a depth of 40 inches, is strong brown loam and, to a depth of 60 inches or more, is multicolored yellowish brown, yellow, and strong brown loam.

Included with this soil in mapping are small areas of well drained Elioak and Glenelg soils and excessively drained Hazel soils. The Elioak soils are on the less steep positions. The Glenelg and Hazel soils are throughout the mapped area. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low to moderate, and the natural fertility is low. This soil commonly is strongly acid or very strongly acid throughout, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to cultivated crops and hay. The steep slope makes use of modern tillage equipment impractical.

This soil is moderately well suited to pasture. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. This soil is managed for pines and hardwoods. Seeds and seedlings do well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope is the main limitation for nonfarm uses. Slope limits use of this soil as sites for buildings, sanitary facilities, and recreational development. This soil is a poor source for roadfill because of the slope.

This soil is in capability subclass VIe.

51B—Manteo channery silt loam, 2 to 7 percent slopes. This shallow, gently sloping, somewhat excessively drained soil is on weakly convex ridgetops. Slopes are smooth and about 200 to 500 feet long. Areas of this soil are along ridges and are long and winding. They range from 5 to about 15 acres or more.

Typically, the surface layer of this soil is very dark grayish brown and brown channery silt loam about 6 inches thick. The subsoil is yellowish brown, friable, very channery silt loam about 8 inches thick. The substratum is about 4 inches thick. It is brownish yellow extremely channery loam and has about 75 percent schist fragments. Bedrock is at a depth of 18 inches (fig. 10).

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of moderately well drained to somewhat poorly drained Lignum soils and well drained Nason and Tatum soils. The Lignum soils are in depressions and along small streams. The Nason and Tatum soils are scattered throughout the mapped area. Included soils make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is medium. The soil has good tilth. The hazard of erosion is moderate. The natural fertility and the content of organic matter are low. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 20 inches. The surface layer and subsoil commonly are very strongly acid to extremely acid.

Most areas of this soil are in woodland. A very few areas are farmed or in pasture.

This soil is poorly suited to cultivated crops. The soil is droughty during the growing season. The hazard of erosion is moderate and is a major management concern. Other management concerns are the need to increase organic matter content and use of lime and fertilizer according to soil tests to offset the acidity and low natural fertility of this soil. If this soil is cultivated, conservation tillage and use of cover crops and grasses and legumes in the cropping system help reduce runoff and control erosion.

This soil is moderately well suited to pasture and hay crops. Maintaining a mixture of grasses and legumes, adding lime and fertilizer according to soil tests, and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, rotation of pasture, and deferment of grazing are useful in pasture management.

Potential productivity for trees on this soil is moderate. The soil is managed mostly for loblolly and shortleaf pine. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Windthrow is a hazard because of the shallow rooting depth.

Depth to bedrock and the moderately rapid permeability are the main limitations for nonfarm uses.

This soil is in capability subclass IVe.

51C—Manteo channery silt loam, 7 to 15 percent slopes. This shallow, strongly sloping, somewhat excessively drained soil is on side slopes. Slopes are smooth and about 200 to 500 feet long. Areas of this soil are along the ridges and are long and winding. They range from 15 to about 50 acres.

Typically, the surface layer of this soil is very dark grayish brown and brown channery silt loam about 6 inches thick. The subsoil is yellowish brown, friable very channery silt loam about 8 inches thick. The substratum is about 4 inches thick. It is brownish yellow extremely channery loam and about 75 percent schist fragments. Bedrock is at a depth of 18 inches.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of moderately well drained to somewhat poorly drained Lignum soils and well drained Nason and Tatum soils. The Lignum soils are in depressions and along small streams. The Nason and Tatum soils are scattered throughout the mapped area. Also included are small areas of soils that have a very channery surface layer. Included soils make up 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. The organic matter content and the natural fertility are low. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 20 inches. The surface layer and subsoil commonly are very strongly acid or extremely acid.

Most areas of this soil are in woodland. A very few areas are farmed or in pasture.

This soil is not suited to cultivated crops. It is droughty during the growing season. The hazard of erosion is severe and is a major management concern.

This soil is moderately well suited to pasture and hay crops. Maintaining a mixture of grasses and legumes, adding lime and fertilizer according to soil tests, and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes and controlled grazing are useful in pasture management.

Potential productivity for trees on this soil is moderate. The soil is managed mostly for loblolly and shortleaf

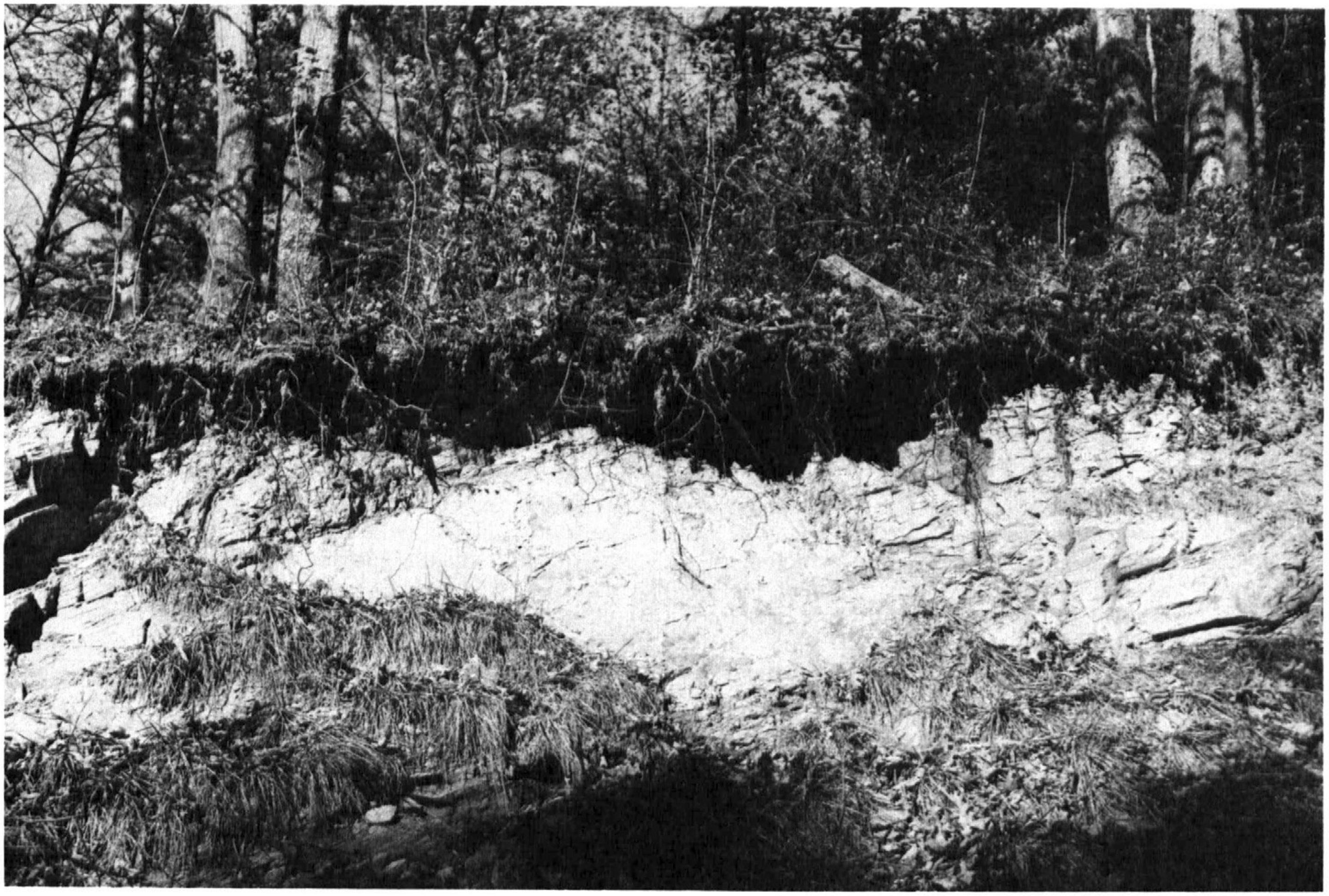

Figure 10.—Cutbank in an area of Manteo channery silt loam, 2 to 7 percent slopes. The exposed underlying bedrock and roots hold the soil in place and cause a slight overhang.

pine. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Depth to bedrock, seepage, and slope are the main limitations for nonfarm uses.

This soil is in capability subclass VIe.

51D—Manteo channery silt loam, 15 to 25 percent slopes. This moderately steep, shallow, somewhat excessively drained soil is on side slopes. Slopes are smooth and about 200 to 500 feet long. Areas of this soil are along ridges and streams and are long and winding. They range from 15 to about 50 acres.

Typically, the surface layer of this soil is very dark grayish brown and brown channery silt loam about 6 inches thick. The subsoil is yellowish brown, friable very channery silt loam about 8 inches thick. The substratum is about 4 inches thick. It is brownish yellow extremely channery loam and about 75 percent schist fragments. Bedrock is at a depth of 18 inches.

Included with this soil in mapping are small intermingled areas, generally less than 5 acres, of moderately well drained to somewhat poorly drained Lignum soils and well drained Nason and Tatum soils. The Lignum soils are in depressions and along small streams. The Nason and Tatum soils are scattered throughout the mapped area. Also included are small areas of soils that have a very channery surface. Included soils make up 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. The natural fertility and the organic matter content are low. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 20 inches. The surface layer and subsoil commonly are very strongly acid or extremely acid.

Most areas of this soil are in woodland. A very few areas are in pasture.

This soil is not suited to cultivated crops. It is droughty during the growing season. The hazard of erosion is severe and is a major management concern.

This soil is poorly suited to pasture and hay crops. Maintaining a mixture of grasses and legumes, adding lime and fertilizer according to soil tests, and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes and controlled grazing are useful in pasture management.

Potential productivity for trees on this soil is moderate. The soil is managed mostly for loblolly and shortleaf pine. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

Depth to bedrock and slope are the main limitations for nonfarm uses.

This soil is in capability subclass VIIe.

51E—Manteo channery silt loam, 25 to 45 percent slopes. This steep, shallow, somewhat excessively drained soil is on side slopes. Slopes are smooth and about 200 to 400 feet long. Areas of this soil are along the ridges and streams and are long and winding. They range from 15 to about 50 acres.

Typically, the surface layer of this soil is very dark grayish brown and brown channery silt loam about 6 inches thick. The subsoil is yellowish brown, friable very channery silt loam about 8 inches thick. The substratum is about 4 inches thick. It is brownish yellow extremely channery loam and about 75 percent schist fragments. Bedrock is at a depth of 18 inches.

Included with this soil in mapping are small intermingled areas, generally less than 5 acres, of moderately well drained to somewhat poorly drained Lignum soils and well drained Nason soils. The Lignum soils are on foot slopes and along small streams. The Nason soils are scattered throughout the mapped area. Also included are small areas of soils that have a very channery surface layer. Included soils make up 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is very rapid. The hazard of erosion is very severe. The natural fertility and the content of organic matter are low. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 20 inches. The surface layer and subsoil commonly are very strongly acid or extremely acid.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. Steep slopes make use of modern tillage equipment impractical. The soil is droughty during the growing season. The hazard of erosion is severe and is a major management concern.

This soil is poorly suited to pasture crops. Maintaining a mixture of grasses and legumes, adding lime and fertilizer according to soil tests, and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes and controlled grazing are useful in pasture management.

Potential productivity for trees on this soil is moderate. The soil is managed mostly for loblolly and shortleaf pine. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

Depth to bedrock and slope are the main limitations for nonfarm uses.

This soil is in capability subclass VIIe.

52D—Manteo very channery silt loam, 15 to 25 percent slopes. This moderately steep, shallow, somewhat excessively drained soil is on side slopes. Slopes are smooth and about 200 to 400 feet long. Areas of this soil are along ridges and streams and are long and winding. They range from 15 to about 30 acres.

Typically, the surface layer of this soil is very dark grayish brown and brown very channery silt loam about 6 inches thick. The subsoil is yellowish brown, friable very channery silt loam about 8 inches thick. The substratum is about 4 inches thick. It is brownish yellow extremely channery loam and about 75 percent schist fragments. Bedrock is at a depth of 18 inches.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of moderately well drained to somewhat poorly drained Lignum soils and well drained Nason soils. The Lignum soils are on foot slopes and along small streams. The Nason soils are on the less steep positions. Also included are small areas of soils that have a channery surface layer. Included soils make up less than 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. The natural fertility and the organic matter content are low. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 20 inches. The surface layer and subsoil commonly are very strongly acid or extremely acid.

Most areas of this soil are in woodland.

This soil is not suited to hay crops or cultivated crops. It is droughty during the growing season. The hazard of erosion is very severe and is a major management concern.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, control of grazing, weed control, and the use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses from erosion are excessive.

Potential productivity for trees on this soil is moderate. The soil is managed mostly for loblolly and shortleaf pine. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

Depth to bedrock and slope are the main limitations for nonfarm uses.

This soil is in capability subclass VIIs.

52E—Manteo very channery silt loam, 25 to 45 percent slopes. This steep, shallow, somewhat excessively drained soil is on side slopes. Slopes are smooth and about 200 to 400 feet long. Areas of this soil are along ridges and streams and are long and winding. They range from 15 to about 30 acres.

Typically, the surface layer of this soil is very dark grayish brown and brown very channery silt loam about 6 inches thick. The subsoil is yellowish brown, friable very channery silt loam about 8 inches thick. The substratum is about 4 inches thick. It is brownish yellow extremely channery loam and about 75 percent schist fragments. Bedrock is at a depth of 18 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of moderately well drained to somewhat poorly drained Lignum soils and well drained Nason soils. The Lignum soils are along small streams. The Nason soils are on the less steep positions. Also included are small areas of soils that have a channery surface layer. Included soils make up less than 10 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is very rapid. The hazard of erosion is very severe. The natural fertility and the organic matter content are low. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 20 inches. The surface layer and subsoil commonly are very strongly acid or extremely acid.

Most areas of this soil are in woodland.

This soil is not suited to hay crops or cultivated crops. Steep slopes make use of modern tillage equipment impractical. The soil is droughty during the growing season. The hazard of erosion is very severe and is a major management concern.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, weed control, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff increases and soil losses from erosion are excessive.

Potential productivity for trees on this soil is moderate. The soil is managed mostly for loblolly and shortleaf pine. The survival of seeds and seedlings is severely affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The depth to bedrock and slope are the main limitations for nonfarm uses.

This soil is in capability subclass VIIs.

53B—Masada loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on old river terraces that are higher than and some distance from the flood plains. Areas of this soil commonly are irregularly rounded or elongated. They range from 3 to about 20 acres or more.

Typically, the surface layer of this soil is dark brown loam, about 7 inches thick. The subsoil is mostly brown and yellowish red clay loam and clay about 55 inches thick.

Included with this soil in mapping are small areas of well drained Nason and Turbeville soils. The Nason soils are throughout the mapped area. The Turbeville soils are on the slightly higher positions. Also included are small areas of soils that have a gravelly surface layer and and severely eroded soils that have a surface layer of reddish brown clay loam. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 60 inches or more. The organic matter content and the natural fertility are low to moderate. This soil commonly is strongly acid or very strongly acid throughout, but reaction of the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 6 feet.

Many areas of this soil are farmed. Some of the acreage is in woodland, and some is in pasture.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and upland oaks do well on this soil.

The low strength, moderate shrink-swell potential, and the moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic in unpaved areas. The moderately permeable clayey subsoil limits use of the soil for most sanitary facilities. The low strength and excess fines limit the use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

53C—Masada loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on old river terraces that are higher than and some distance from the flood plains. Areas of this soil commonly are irregular in shape and are on the contour. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark brown loam about 7 inches thick. The subsoil is mostly reddish brown and yellowish red clay loam and clay about 55 inches thick.

Included with this soil in mapping are small areas of well drained Nason and Turbeville soils. The Nason soils are throughout the mapped area. The Turbeville soils are on the slightly higher positions. Also included are small areas of soils that have a gravelly surface layer and severely eroded soils that have a reddish brown clay loam surface. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable and easily tilled when moist, but breaks up into clods if the soil is tilled when too wet or too dry. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 60 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 6 feet.

Many areas of this soil are farmed. Some of the acreage is in woodland, and some is in pasture.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, moderate shrink-swell potential, and moderately permeable, clayey subsoil are the main limitations for nonfarm uses. Slope, low strength, and shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. Slope and the moderately permeable, clayey subsoil limit use of the soil for most sanitary facilities. Slope is a limitation for recreational development. The low strength and excess fines limit the use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

54B—Mayodan loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on broad convex ridgetops. Slopes are smooth and about 400 to 800 feet long. Areas of this soil are irregularly rounded or elongated. They range from 3 to about 50 acres.

Typically, the surface layer of this soil is brown and yellowish brown loam about 10 inches thick. The subsoil is mostly strong brown clay loam and silty clay about 43 inches thick. The substratum is mostly red, weathered shale. Hard shale bedrock is at a depth of 60 inches.

Included with this soil in mapping are small areas of moderately well drained to somewhat poorly drained Creedmoor soils, well drained to moderately well drained Manassas soils, and well drained Penn and Totier soils. The Creedmoor and Manassas soils are in small upland depressions, around the heads of drainageways, and along drainageways. The Penn and Totier soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer and small areas that have slopes of more than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. Some areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The high acidity and high content of aluminum are major limitations for this soil. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, and oaks do well on this soil.

The low strength and the clayey, moderately permeable subsoil are the main limitations for nonfarm uses. The low strength limits use of this soil for local roads and streets, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The clayey, moderately permeable subsoil limits sanitary facilities. The low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIe.

54C—Mayodan loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex side slopes. Slopes are smooth and about 300 to 600 feet long. Areas of this soil commonly are irregularly elongated along ridges and drainageways. They range from 3 to about 30 acres.

Typically, the surface layer of this soil is brown and yellowish brown loam about 10 inches thick. The subsoil is mostly strong brown clay loam and silty clay about 43 inches thick. The substratum is mostly red, weathered shale. Hard shale bedrock is at a depth of 60 inches.

Included with this soil in mapping are small areas of well drained to moderately well drained Manassas soils and well drained Penn and Totier soils. The Manassas soils are in depressions and along small drainageways. The Penn and Totier soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer and small areas of soils that have slopes of less than 7 percent. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The soil has good tilth. The surface layer is friable and easily tilled when moist. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Many areas of this soil are farmed. Some of the acreage is in woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil test, crops respond well. The high acidity and high content of aluminum are major limitations. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, and a clayey, moderately permeable subsoil are the main limitations for nonfarm uses. Slope and the low strength limit use of this soil for local roads and streets, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. Slope and the clayey, moderately permeable subsoil limit use of the soil for sanitary facilities. Slope is a limitation for recreational areas. The low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIIe.

55B—McQueen loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on terraces and benches. Areas of this soil commonly are irregularly rounded or elongated. They range from 3 to about 25 acres.

Typically, the surface layer of this soil is dark brown loam about 7 inches thick. The subsoil is mostly yellowish red clay and clay loam about 45 inches thick.

The substratum is multicolored strong brown and light yellowish brown sandy clay loam to a depth of 64 inches.

Included with this soil in mapping are small areas of moderately well drained Dogue soils, well drained Masada soils, and somewhat poorly drained Wahee soils. The Dogue and Wahee soils are in slight depressions and on the lower positions. The Masada soils are generally on the higher positions farthest from the stream. Also included are small areas of soils that have a gravelly surface layer and of severely eroded soils that have a surface layer of reddish brown clay loam. Included soils make up about 15 percent of mapped areas.

Permeability is slow, and available water capacity is moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 50 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 6 feet. This soil is subject to rare flooding in some areas.

Many areas of this soil are farmed. Some of the acreage is in pasture.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, rotation of pasture, deferred grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, rare flooding, and moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength and flooding limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic in unpaved areas. The moderately permeable, clayey subsoil limits use of the soil for sanitary facilities. The moderately permeable subsoil and flooding are limitations for recreational development. The low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIe.

56B—Meadowville loam, 2 to 7 percent slopes. This deep, gently sloping, well drained to moderately well drained soil is on footslopes, in depressions, and along small drainageways. Most areas of this soil are long and winding. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is dark brown loam about 14 inches thick. The subsoil is about 23 inches thick. It is mostly brown loam and clay loam. The substratum to a depth of 60 inches or more is brown loam.

Included with this soil in mapping are small areas of somewhat poorly drained Belvoir soils, well drained Starr soils, and poorly drained Worsham soils. The Belvoir and Worsham soils are mainly in the lowest positions and depressions. The Starr soils are throughout the mapped area. Also included are small areas of gravelly soils. Included soils make up about 25 percent of mapped areas.

Permeability is moderate to moderately rapid, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. The surface layer is friable and easily tilled through a wide range of soil moisture. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 3 to 5 feet during winter and spring. Bedrock is at a depth of more than 5 feet.

Most areas of this soil are farmed. Some areas are in pasture, and a few areas are in woodland.

This soil is well suited to cultivated crops. The moderate hazard of erosion and seepage from higher lying areas are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is high, especially for loblolly pine, yellow-poplar, sweetgum, and oaks. Seeds and seedlings survive and grow well.

The seasonal high water table, moderate shrink-swell potential, and moderate to moderately rapid permeability of the subsoil are the main limitations for nonfarm uses. The seasonal high water table and the shrink-swell potential limit use of this soil as a building site. The permeability of the subsoil and the seasonal wetness are limitations for most sanitary facilities. Slope is a limitation for playgrounds. The low strength and excess fines limit use of the soil as source of roadfill.

This soil is in capability subclass IIe.

56C—Meadowville loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained to moderately well drained soil is on foot slopes, in depressions, and along small drainageways. Most areas of this soil are long and winding. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is dark brown loam about 14 inches thick. The subsoil is mostly brown loam and clay loam about 32 inches thick. The substratum to a depth of 60 inches or more is brown loam.

Included with this soil in mapping are small areas of somewhat poorly drained Belvoir soils. The Belvoir soils are in depressions at the heads of drainageways. Also included are small areas of soils that have a gravelly surface layer and small areas of soils that have a clayey subsoil. Included soils make up about 20 percent of mapped areas.

Permeability is moderate to moderately rapid, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable and easily tilled through a wide range of soil moisture. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 3 to 5 feet during winter and early in spring. Bedrock is at a depth of more than 5 feet.

Most areas of this soil are farmed. Some areas are in pasture, and a few areas are in woodland.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion and seepage from higher lying areas are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing and grazing when the soil is wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is high, especially for loblolly pine, yellow-poplar, sweetgum, and oaks. Seeds and seedlings survive and grow well.

The seasonal high water table, slope, moderate shrink-swell potential, and moderate to moderately rapid permeability of the subsoil are the main limitations for nonfarm uses. The seasonal high water table, slope, and shrink-swell potential limit use of this soil as a building site. The slope, permeability of the subsoil, and seasonal wetness are limitations for most sanitary facilities. Slope is a limitation for recreational development. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

57B—Mount Lucas silt loam, 2 to 7 percent slopes. This deep, gently sloping, moderately well drained to somewhat poorly drained soil is on foot slopes, in upland depressions, and along intermittent drainageways. Most areas of this soil are irregularly long and winding. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is dark yellowish brown silt loam about 10 inches thick. The upper 20 inches of the subsoil is mostly yellowish brown and brownish yellow clay loam and silty clay loam and has gray mottles below a depth of about 14 inches. The lower 18 inches of the subsoil is reddish yellow and light gray clay and has yellowish brown mottles. The substratum to a depth of 64 inches or more is strong brown silty clay loam and is mottled gray, black, and yellowish brown.

Included with this soil in mapping are small areas of well drained Myersville, Rabun, and Starr soils and poorly drained Worsham soils. The Myersville and Rabum soils are on the higher positions mainly close to the uplands. The Starr soils are on the higher positions throughout the mapped area. The Worsham soils are on the slightly lower positions throughout the mapped area. Also included are small areas of soils that have slopes of less than 2 percent or slopes of more than 7 percent and areas of soils that have a thicker surface layer than typical. Included soils make up about 20 percent of mapped areas.

Permeability is slow, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. The surface layer is friable, and tilth is good. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. Depth to bedrock is more than 4 feet. The organic matter content is low, and the natural fertility is medium. This soil commonly is medium acid to neutral throughout. A seasonal high water table is at a depth of 1/2 foot to 3 feet during winter and early in spring.

Most areas of this soil are in pasture or woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The soil is wet and cold early in spring, and wetness commonly interferes with early tillage. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to most pasture and hay crops. Alfalfa commonly is short lived because of seasonal wetness. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlling grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is high, especially for loblolly pine, yellow-poplar, sweetgum, and oaks. Seeds and seedlings survive and grow well. The soil is soft when wet, and the use of heavy equipment is limited during wet periods.

Shallow depth to the seasonal high water table, moderate shrink-swell potential, clayey subsoil, and slow permeability of the subsoil are the main limitations for nonfarm uses. The seasonal high water table and moderate shrink-swell potential limit use of this soil as a building site. The slowly permeable, clayey subsoil and the seasonal wetness are limitations for most sanitary facilities. The seasonal wetness is a limitation for recreational development. Wetness and excess fines limit the use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

58B—Myersville silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow, weakly convex ridgetops. Slopes are smooth and 100 to 300 feet long. Areas of this soil range from 3 to about 25 acres.

Typically, the surface layer of this soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of at least 65 inches is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Included with this soil in mapping are small areas of well drained Catoctin, Fauquier, and Rabun soils. The Catoctin soils are near the breaks to steeper slopes and around outcrops of rock. The Fauquier and Rabun soils are scattered throughout the mapped area. Also included are small areas of soils that have stones on the surface and severely eroded soils that have a yellowish red silty clay loam surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer and upper part of the B horizon is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed or in pasture and hay crops. Some areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Minimum tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Black walnut, yellow-poplar, and loblolly pine grow well on this soil.

The moderately permeable subsoil and depth to rock are the main limitations for nonfarm uses. The moderate permeability and depth to rock limit use of this soil for some sanitary facilities. Slope and the easily erodible surface layer are limitations for some recreational areas. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

58C—Myersville silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow, convex ridgetops and side slopes. Slopes are smooth and 100 to 400 feet long. Areas of this soil range from 3 to about 30 acres.

Typically, the surface layer of this soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of at least 65 inches is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Included with this soil in mapping are small areas of well drained Catoctin, Fauquier, and Rabun soils. The Catoctin soils are near the breaks to steeper slopes and around outcrops of rock. The Fauquier and Rabun soils are scattered throughout the mapped area. Also included are small areas of soils that have stones on the surface and severely eroded soils that have a yellowish red silty clay loam surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer and upper part of the B horizon is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed or in pasture and hay crops. Some areas are in woodland.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Minimum tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, rotation of pasture, deferred grazing, and the use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Black walnut, yellow-poplar, and loblolly pine do well on this soil.

The slope, moderately permeable subsoil, and depth to rock are the main limitations for nonfarm uses. Slope limits use of this soil for building sites. Slope, moderate permeability, and depth to rock are limitations for most sanitary facilities. Slope and the easily erodible surface layer are limitations for recreational development. The low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIIe.

58D—Myersville silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on convex side slopes. Slopes are smooth and 200 to 500 feet long. Areas of this soil range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of at least 65 inches is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Included with this soil in mapping are small areas of well drained Catoctin and Fauquier soils. The Catoctin soils are near breaks to steeper slopes and around outcrops of rock. The Fauquier soils are scattered throughout the mapped area. Also included are small areas of soils that have stones on the surface and severely eroded soils that have a yellowish red silty clay loam surface layer. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer and upper part of the B horizon is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in pasture or woodland.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Minimum tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, rotation of pasture, deferred grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment. Black walnut, yellow-poplar, and loblolly pine do well on this soil.

Slope and depth to rock are the main limitations for nonfarm uses. Slope limits this soil for use as a building site and for recreational development. Slope and the depth to rock are limitations for most sanitary facilities. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IVe.

58E—Myersville silt loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on convex side slopes. Slopes are smooth and 200 to 500 feet long. Areas of this soil range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of more than 60 inches is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Included with this soil in mapping are small areas of well drained Catoctin and Fauquier soils. These soils are throughout the mapped area. Also included are small areas of soils that have stones on the surface and severely eroded soils that have a yellowish red silty clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer and upper part of the B horizon is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland. Some areas are in pasture.

This soil is not suited to hay and cultivated crops. The steep slope makes use of modern equipment impractical.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment. Black walnut, yellow-poplar, and loblolly pine do well on this soil.

Slope and depth to rock are the main limitations for nonfarm uses. Slope limits this soil for use as a building site and for recreational development. Slope and depth to rock are limitations for most sanitary facilities. The slope, low strength, and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass VIe.

59C—Myersville very stony silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex ridgetops and side slopes. Stones, 3 to 10 feet apart, cover about 3 to 15 percent of the surface. Slopes are smooth and 300 to 1,000 feet long. Areas of this soil range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of at least 65 inches is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Included with this soil in mapping are small areas of well drained Catoctin and Rabun soils. The Catoctin soils are near breaks to steeper slopes and around outcrops of rock. The Rabun soils are throughout the mapped area. Also included are areas of soils that have slopes of less than 7 percent and small areas of soils that do not have stones on the surface. The included soils and outcrops make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer and upper part of the B horizon is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland or pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Black walnut, yellow-poplar, and loblolly pine do well on this soil.

Slope, moderately permeable subsoil, depth to rock, and large stones are the main limitations for nonfarm uses. Slope limits this soil for use as a building site. Slope, moderate permeability, and large stones are limitations for sanitary facilities. Slope and large stones limit use of the soil for recreational development. The low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass VIs.

59D—Myersville very stony silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on narrow, convex ridgetops and side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and 300 to 1,000 feet long. Areas of this soil range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of at least 65 inches is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Included with this soil in mapping are small areas of well drained Catoctin and Rabun soils. The Catoctin soils are near breaks to steeper slopes and around outcrops of rock. The Rabun soils are throughout the mapped area. Also included are small areas of soils that do not have stones on the surface and small areas of soils that are extremely stony. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer and upper part of the B horizon is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland or pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make use of tillage equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment. Black walnut, yellow-poplar, and loblolly pine do well on this soil.

Slope, depth to rock, and large stones are the main limitations for nonfarm uses. Slope limits this soil for use as a building site. Slope and depth to rock are limitations for most sanitary facilities. Slope is a limitation for recreational development, and large stones limit playgrounds. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass VIs.

59E—Myersville very stony silt loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and 200 to 1,000 feet long. Areas of this soil range from 10 to about 50 acres.

Typically, the surface layer of this soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of at least 65 inches is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Included with this soil in mapping are small areas of well drained Catoctin and Rabun soils. The Catoctin and Rabun soils are scattered throughout the mapped area. Also included are small areas of soils that do not have stones on the surface and small areas of extremely stony soils. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of at least 40 inches. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is very strongly acid to medium acid throughout, but reaction in the surface layer and upper part of the B horizon is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. The steep slope and large stones on the surface make use of modern tillage equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment. Black walnut, yellow-poplar, and loblolly pine do well on this soil.

Slope, depth to rock, and large stones are the main limitations for nonfarm uses. Slope limits this soil for use as a building site. Slope and the depth to rock are limitations for most sanitary facilities. Slope is a limitation for recreational development, and large stones limit use of the soil for playgrounds. The slope, low strength, and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass VIIs.

60C—Myersville-Catoctin very stony silt loams, 7 to 15 percent slopes. This map unit is made up of deep and moderately deep, strongly sloping, well drained soils on narrow, convex ridgetops. Stones 3 to 10 feet apart cover 3 to 15 percent of the surface. Slopes are smooth and about 300 to 600 feet long. Areas of this map unit are irregularly elongated. They range from 5 to about 50 acres.

The map unit is about 70 percent Myersville soils and 25 percent Catoctin soils. Other soils make up the rest. The areas of individual soils are so small or so intermingled that to separate them in mapping was not practical.

Typically, the surface layer of the Myersville soil is dark brown and brown silt loam about 7 inches thick. The subsoil extends to a depth of 36 inches. It is mostly yellowish red silty clay loam and silt loam. The substratum to a depth of 65 inches or more is mostly weathered greenstone in shades of yellow, brown, red, and black that crushes to silt loam.

Typically, the surface layer of the Catoctin soil is dark yellowish brown silt loam about 8 inches thick. The subsoil is strong brown very channery silt loam about 13 inches thick. It contains pockets of reddish brown silty clay loam. The substratum to a depth of 28 inches is yellowish brown extremely channery silt loam. Hard greenstone rock is at a depth of 28 inches.

Included with these soils in mapping are small areas of well drained Lew soils. The Lew soils are along small streams and in positions that collect material from higher surrounding soils. Also included are ledges and outcrops of greenstone, areas of soils that have slopes of less than 7 percent, and areas of extremely stony soils. The included soils and outcrops make up about 55 percent of mapped areas.

Permeability is moderate in the Myersville soil and moderately rapid in the Catoctin soil. The available water capacity is moderate in the Myersville soil and low in the Catoctin soil. The surface layer of these soils is friable, but large stones make tillage impractical. These soils have low shrink-swell potential. In the Myersville soil the root zone extends to a depth of 40 inches or more and in the Catoctin soil extends to a depth of about 24 inches. The organic matter content is moderate, and the natural fertility is medium. The soils commonly are medium acid or strongly acid. Depth to bedrock is generally more than 5 feet in the Myersville soil and within a depth of 40 inches in the Catoctin soil.

Nearly all of this map unit is in woodland.

Areas of these soils are not suited to hay and cultivated crops. Large stones on the surface make use of modern equipment impractical.

Areas are moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, rotating of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees is very high for the Myersville soils and moderate for the Catoctin soils. These soils are managed mainly for hardwoods. Seeds and seedlings do well on the Myersville soils if competing vegetation is controlled, but they are affected by droughtiness during the growing season on the Catoctin soils. Black walnut, yellow-poplar, white and red oaks, and loblolly pine do well on these soils.

Slope, depth to bedrock, and large stones are the main limitations for nonfarm uses. Depth to bedrock, slope, and large stones limit use of this unit as a site for sanitary facilities. Slope and the depth to bedrock are limitations for building sites. Slope and large stones limit recreational development. The low strength and excess fines limit use of these soils as a source of roadfill.

This map unit is in capability subclass VIs.

60D—Myersville-Catoctin very stony silt loams, 15 to 25 percent slopes. This unit is made up of deep and moderately deep, moderately steep, well drained soils on narrow, convex ridgetops and convex side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 500 to 1,000 feet long. Areas of this map unit are irregularly elongated. They range from 5 to more than 50 acres.

The map unit is about 60 percent Myersville soils and 30 percent Catoctin soils. Other soils make up the rest. The areas of individual soils are so small or so intermingled that to separate them in mapping was not practical.

Typically, the surface layer of the Myersville soil is dark brown and brown silt loam about 7 inches thick. The subsoil extends to a depth of 36 inches. It is mostly yellowish red silty clay loam and silt loam. The substratum to a depth of 65 inches or more is mostly weathered greenstone in shades of yellow, brown, red, and black that crushes to silt loam.

Typically, the surface layer of the Catoctin soil is dark yellowish brown silt loam about 8 inches thick. The subsoil is strong brown very channery silt loam about 13 inches thick. It contains pockets of reddish brown silty clay loam. The substratum to a depth of 28 inches is yellowish brown extremely channery silt loam. Hard greenstone rock is at a depth of 28 inches.

Included with these soils in mapping are small areas of well drained Lew soils. The Lew soils are along small streams and in positions that collect material from higher surrounding soils. Also included are ledges and outcrops of greenstone and areas of extremely stony soils. The included soils and outcrops make up about 10 percent of mapped areas.

Permeability is moderate in the Myersville soil and moderately rapid in the Catoctin soil. The available water capacity is moderate in the Myersville soil and low in the Catoctin soil. The surface layer of these soils is friable, but large stones make tillage impractical. These soils have low shrink-swell potential. In the Myersville soil the root zone extends to a depth of 40 inches or more and in the Catoctin soil extends to a depth of about 24 inches. The organic matter content is low to moderate, and the natural fertility is medium. The soils commonly are medium acid or strongly acid. Depth to bedrock is generally more than 5 feet in the Myersville soil and 40 inches or less in the Catoctin soil.

Nearly all of this map unit is in woodland.

Areas of these soils are not suited to hay and cultivated crops. Large stones on the surface make use of modern tillage equipment impractical.

Areas are moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees is high for the Myersville soils and moderate for the Catoctin soils. These soils are managed mainly for hardwoods. Seeds and seedlings survive and grown well on the Myersville soils if competing vegetation is controlled, but they are affected by droughtiness during the growing season on the Catoctin soils. Black walnut, yellow-poplar, white and red oaks, and loblolly pine do well on these soils. The steep slope limits the safe use of logging equipment. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

The slope, depth to bedrock, and large stones are the main limitations for nonfarm uses. Depth to bedrock, slope, and large stones limit use of this map unit as a site for sanitary facilities. Slope and the depth to bedrock are limitations for building sites. Slope and large stones limit recreational development. Slope, low strength, and excess fines limit use of these soils as a source of roadfill.

This map unit is in capability subclass VIIs.

60E—Myersville-Catoctin very stony silt loams, 25 to 60 percent slopes. This map unit is made up of deep and moderately deep, steep to very steep, well drained soils on convex side slopes and mountainsides. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 500 to 2,000 feet long. Areas of this map unit are wide and irregularly elongated. They range from 50 to about 200 acres.

The map unit is about 60 percent Myersville soils and 30 percent Catoctin soils. Other soils make up the rest. The areas of individual soils are so small or so intermingled that to separate them in mapping was not practical.

Typically, the surface layer of the Myersville soil is dark brown and brown silt loam about 7 inches thick. The subsoil extends to a depth of 36 inches. It is mostly yellowish red silty clay loam and silt loam. The substratum to a depth of 65 inches or more is mostly weathered greenstone in shades of yellow, brown, red, and black that crushes to silt loam.

Typically, the surface layer of the Catoctin soil is dark yellowish brown silt loam about 8 inches thick. The subsoil is strong brown very channery silt loam about 13 inches thick. It contains pockets of reddish brown silty clay loam. The substratum to a depth of 28 inches is yellowish brown extremely channery silt loam. Hard greenstone is at a depth of 28 inches.

Included with these soils in mapping are small areas of well drained Lew soils. The Lew soils are along small streams and in positions that collect material from higher surrounding soils. Also included are ledges and outcrops of greenstone, areas of soils that have slopes of less than 25 percent, and areas of extremely stony soils. The included soils and outcrops make up about 10 percent of mapped areas.

Permeability is moderate in the Myersville soil and moderately rapid in the Catoctin soil. The available water capacity is moderate in the Myersville soil and low in the Catoctin soil. The surface layer of these soils is friable, but large stones make tillage impractical. These soils have low shrink-swell potential. In the Myersville soil the root zone extends to a depth of 40 inches or more and in the Catoctin soil extends to a depth of about 24 inches. The organic matter content is low to moderate, and the natural fertility is medium. The soils commonly are medium acid or strongly acid. Depth to bedrock is generally more than 5 feet in the Myersville soil and less than 40 inches in the Catoctin soil.

Nearly all of this map unit is in woodland.

Areas of these soils are not suited to hay and cultivated crops. The steep slope and large stones on the surface make use of modern tillage equipment impractical.

Areas are poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees is high to moderate. These soils are managed mainly for hardwoods. Seeds and seedlings survive and grow well on the Myersville soils if competing vegetation is controlled, but they are affected by droughtiness during the growing season on the Catoctin soils. Black walnut, yellow-poplar, white and red oaks, and loblolly pine do moderately well on these soils. The steep slope limits the safe use of logging equipment. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

The slope, depth to bedrock, and large stones are the main limitations for nonfarm uses. Depth to bedrock and slope limit use of this map unit as a site for sanitary facilities. Slope and the depth to bedrock are limitations for building sites. Slope and large stones limit recreational development. Slope, low strength, and excess fines limit use of these soils as a source of roadfill.

This map unit is in capability subclass VIIs.

61D—Myersville-Rock outcrop complex, 15 to 25 percent slopes. This complex is made up of deep, moderately steep, well drained soils and outcrops of greenstone on side slopes of Southwestern Mountain. Areas are irregularly elongated and range from 10 to 50 acres.

The complex is about 60 percent Myersville very stony silt loam and 25 percent Rock outcrop. Other soils make up the rest. The areas of individual soils and Rock outcrop are so small or so intermingled that to separate them in mapping was not practical.

Typically, the surface layer of the Myersville soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of 65 inches or more is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Rock outcrop ranges in height from a few inches to more than 10 feet. Vertical faces are exposed on bluffs in some areas.

Included in mapping are small areas of well drained Catoctin and Starr soils. The Catoctin soils are throughout the mapped area. The Starr soils are on foot slopes and along drainageways. Also included are small areas that have 50 to 90 percent Rock outcrop, areas that have an extremely stony surface layer, and areas that have slopes of more than 25 percent. Loose rock fragments are on the surface in some areas, especially in or near drainageways. Included soils make up about 15 percent of mapped areas.

Permeability in the Myersville soil is moderate, and available water capacity is moderate. Surface runoff is rapid. The hazard of erosion is severe, and past erosion has exposed many outcrops of rock and rock fragments on the surface. The subsoil has low shrink-swell potential. The root zone is 40 inches or more in depth. The organic matter content is low to moderate, and the natural fertility is medium. The soil commonly is strongly acid or medium acid. Bedrock is generally deeper than 5 feet in the Myersville soil.

Most areas of this complex are in woodland. A few areas are in pasture.

This complex is not suited to hay or cultivated crops. Rock outcrop, rock fragments, and slope make the use of modern farm machinery impractical.

The Myersville soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

The potential productivity for trees on the Myersville soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting,spraying, and girdling. Rock outcrop, rock fragments, slope, and erosion are the major hazards or limitations to the growing and harvesting of trees on this complex. Black walnut, yellow-poplar, and loblolly pine do well.

This complex is limited for most community development and recreational uses because of the Rock outcrop, rock fragments, and slope. These features also limit the use of this complex as a source of roadfill. This complex is poor for use as openland wildlife habitat and good for use as woodland wildlife habitat.

This complex is in capability subclass VIIs.

61E—Myersville-Rock outcrop complex, 25 to 45 percent slopes. This complex is made up of deep, steep, well drained soils and outcrops of greenstone on side slopes and along V-shaped valleys of Southwestern Mountain. Areas are irregularly elongated and range from 10 to about 50 acres.

The complex is about 60 percent Myersville very stony silt loam and 25 percent Rock outcrop. Other soils make up the rest. The areas of individual soils and Rock outcrop are so small or so intermingled that to separate them in mapping was not practical.

Typically, the surface layer of the Myersville soil is dark brown and brown silt loam about 7 inches thick. The subsoil is mostly yellowish red silty clay loam and silt loam about 29 inches thick. The substratum to a depth of 65 inches or more is mostly weathered greenstone in shades of brown, yellow, red, and black that crushes to silt loam.

Rock outcrop ranges in height from a few inches to more than 10 feet. Vertical faces are exposed on bluffs in some areas.

Included in mapping are small areas of well drained Catoctin and Rabun soils. These soils are throughout the mapped area. Also included are small areas that have 50 to 90 percent Rock outcrop, areas that have an extremely stony surface layer, and areas that have slopes of more than 45 percent. Loose rock fragments are on the surface in some areas, especially in or near drainageways. Included soils make up about 15 percent of mapped areas.

Permeability in the Myersville soil is moderate, and available water capacity is moderate. Surface runoff is very rapid. The hazard of erosion is very severe, and past erosion has exposed many outcrops of rock and rock fragments on the surface. The subsoil has low shrink-swell potential. The root zone is 40 inches or more in depth. The organic matter content is low to moderate, and the natural fertility is medium. The soil commonly is strongly acid or medium acid. Bedrock is generally deeper than 5 feet in the Myersville soil.

Most areas of this complex are in woodland. A few of the less sloping areas are in pasture.

This complex is not suited to hay or cultivated crops. Rock outcrop, rock fragments, and slope make the use of modern machinery impractical.

The Myersville soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

The potential productivity for trees on the Myersville soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation including cutting, spraying, and girdling. Slope, Rock outcrop, rock fragments, and erosion are the major hazards or limitations to the growing and harvesting of trees on this complex. The use of machinery is restricted by the steep slope and rocks. Black walnut, yellow-poplar, and loblolly pine do well.

This complex is limited for most community development and recreational uses because of slope, Rock outcrop, and rock fragments. These features also limit the use of this complex as a source of roadfill. This complex is poor for openland wildlife habitat and good for woodland wildlife habitat.

This complex is in capability subclass VIIs.

62B—Nason silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on convex ridgetops. Areas of this soil are commonly irregularly rounded or oblong. They range from 5 to about 150 acres.

Typically, the surface layer of this soil is grayish brown and yellowish brown silt loam about 8 inches thick. The subsoil is mostly yellowish red and strong brown silty clay loam and silty clay about 31 inches thick. The substratum to a depth of 50 inches is mostly strong brown, yellowish brown, and red channery silt loam.

Included with this soil in mapping are small areas of somewhat poorly drained Lignum soils, well drained Tatum soils, and somewhat excessively drained Manteo soils. The Tatum soils are scattered throughout the mapped area. The Lignum soils are mainly along drainageways. The Manteo soils are mainly on the steeper positions. Also included are small areas of soils that have a channery surface layer and of severely eroded soils that have a surface layer of yellowish brown silty clay loam. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and the natural fertility are low to moderate. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to rippable bedrock ranges from 40 to more than 60 inches.

Most areas of this soil are in woodland. Some of the acreage is farmed.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The high acidity and high content of aluminum are major limitations for this soil. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, moderate shrink-swell potential, and moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The moderately permeable subsoil limits use of the soil for septic tank absorption fields. Permeability in the substratum commonly is not a limiting factor for septic tank absorption fields. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

62C—Nason silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex ridgetops, the points of ridges, and narrow convex side slopes. Areas of this soil commonly are long and winding. They range from 20 to 150 acres.

Typically, the surface layer of this soil is grayish brown and yellowish brown silt loam about 8 inches thick. The subsoil is mostly yellowish red and strong brown silty clay loam and silty clay about 31 inches thick. The substratum to a depth of 50 inches is mostly strong brown, yellowish brown, and red channery silt loam.

Included with this soil in mapping are small areas of moderately well drained Abell soils, somewhat excessively drained Manteo soils, and well drained Tatum soils. The Abell soils are along drainageways and small streams. The Manteo soils are mostly on the steeper slopes. The Tatum soils are throughout the mapped area. Also included are small areas of channery soils and small areas of severely eroded soils that have a yellowish brown silty clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium to rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled when moist but breaks up into clods if tilled when the soil is too wet or too dry. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and the natural fertility are low to moderate. This soil is commonly strongly acid or very strongly acid, but reaction in the surface layer is variable because of local liming. Depth to rippable bedrock ranges from 40 to more than 60 inches.

Most areas of this soil are in woodland. Some areas are farmed, and a few areas are in pasture.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The high acidity and high content of aluminum are major limitations for this soil. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, rotation of pasture, deferred grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The slope, low strength, moderate shrink-swell potential, and moderately permeable, clayey subsoil are the main limitations for nonfarm uses. Slope, the low strength, and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. Slope and the slow percolation rate limit use of the soil for septic tank absorption fields and for recreational areas. Permeability of the substratum commonly is not a limiting factor for septic tank absorption fields. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

62D—Nason silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on convex side slopes. Areas of this soil are slightly elongated or long and winding. They range from 3 to 30 acres.

Typically, the surface layer of this soil is yellowish brown silt loam about 8 inches thick. The subsoil is mostly yellowish brown and strong brown silty clay loam and silty clay about 31 inches thick. The substratum to a depth of 50 inches is mostly strong brown, yellowish brown, and red channery silt loam.

Included with this soil in mapping are small areas of somewhat poorly drained Lignum soils, moderately well drained Abell soils, and somewhat excessively drained Manteo soils. The Lignum soils are along drainageways and small streams. The Abell soils are on foot slopes and along small drainageways. The Manteo soils are scattered throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer, areas of severely eroded soils that have a yellowish brown silty clay loam surface layer, and small areas of gullied soils mainly on the lower part of slopes. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is moderately friable and easily tilled when moist. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and the natural fertility are low to moderate. This soil is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to rippable bedrock ranges from 40 to more than 60 inches.

Most areas of this soil are in woodland.

This soil is poorly suited to cultivated crops. The soil is somewhat droughty during the growing season, because of the rapid surface runoff, and crop response to lime and fertilizer is somewhat limited by this lack of moisture. The high acidity and high content of aluminum are major limitations for this soil. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and upland oaks do well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope and clayey subsoil are the main limitations for nonfarm uses. Slope limits use of this soil as sites for buildings, septic tank absorption fields, and recreational areas. Slope and the clayey subsoil limit sanitary landfills. When wet, the clayey subsoil limits vehicular traffic. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IVe.

63B—Orange silt loam, 2 to 7 percent slopes. This deep, gently sloping, somewhat poorly drained to moderately well drained soil is on broad, weakly convex ridgetops. Areas of this soil are elongated, irregularly rectangular, or irregularly oval. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark yellowish brown silt loam about 9 inches thick. The subsoil, to a depth of 33 inches, is mostly yellowish brown silty clay and clay mottled with gray. The substratum is multicolored brown, gray, and yellow loam to a depth of 55 inches. Bedrock is at a depth of 55 inches.

Included with this soil in mapping are small areas of well drained Fluvanna, Myersville, and Nason soils. These soils are mostly on high positions throughout the mapped area. Also included are small severely eroded areas of soils that have a yellowish brown silty clay loam or clay surface layer, small areas of soils that have a gravelly surface layer, and areas of soils that have slopes of 7 to 10 percent. Included soils make up about 20 percent of mapped areas.

Permeability is slow, and available water capacity is moderate. The surface runoff is medium, and the hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has high shrink-swell potential. The root zone extends to a depth of 40 inches or more but is somewhat limited by the clayey subsoil. The organic matter content is low to moderate, and the natural fertility is high. This soil commonly is medium acid to moderately alkaline, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 1 foot to 3 feet during winter and spring. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are used for hay or pasture. Some areas are in woodland.

This soil is moderately well suited to cultivated crops. Alfalfa is short lived because of seasonal wetness. Crop response to lime and fertilizer is somewhat limited. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. Loblolly pine, Virginia pine, and oaks do moderately well. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Shallow depth to the seasonal high water table, high shrink-swell potential, low strength, slope, and the clayey, slowly permeable subsoil are the main limitations for nonfarm uses. The seasonal high water table limits use of this soil as a site for sanitary landfills. Low strength and shrink-swell potential limit building sites, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The slowly permeable subsoil limits the use of the soil for septic tank absorption fields. Slope limits use of this soil for playgrounds. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

64B—Orange very stony silt loam, 2 to 7 percent slopes. This deep, gently sloping, somewhat poorly drained to moderately well drained soil is on weakly convex ridgetops and side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are elongated and irregular in shape. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark yellowish brown silt loam about 9 inches thick. The subsoil, to a depth of 33 inches, is mostly yellowish brown silty clay and clay mottled with gray. The substratum is multicolored brown, gray, and yellow loam to a depth of 55 inches. Bedrock is at a depth of 55 inches.

Included with this soil in mapping are small areas of well drained Catoctin, Fluvanna, and Myersville soils. The Fluvanna and Myersville soils are on the higher positions. The Catoctin soils are along the breaks to steeper positions and around outcrops of rock. Also included are small areas of severely eroded soils that have a yellowish brown clay loam or clay surface layer, of soils that have a gravelly surface layer, and of soils that have slopes of 7 to 10 percent. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is slow, and available water capacity is moderate. Surface runoff is medium, and the hazard of erosion is moderate. The subsoil has high shrink-swell potential. The root zone extends to a depth of 40 inches or more but is somewhat limited by the clayey subsoil. The organic matter content is low to moderate, and the natural fertility is high. This soil commonly is medium acid to moderately alkaline, but reaction in the surface is variable because of local liming. A seasonal high water table is at a depth of 1 foot to 3 feet during winter and spring. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland. Some areas are used for hay or pasture.

This soil is not suited to hay and cultivated crops because large stones on the surface make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. Loblolly pine, Virginia pine, yellow-poplar, and oaks do moderately well. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Shallow depth to the seasonal high water table, high shrink-swell potential, low strength, slope, stoniness, and the clayey, slowly permeable subsoil are the main limitations for nonfarm uses. The seasonal high water table limits use of this soil as a site for sanitary landfills. Low strength, slope, and the shrink-swell potential limit building sites, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The slowly permeable subsoil and slope limit septic tank absorption fields. Slope and stoniness limit use of this soil for playgrounds. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass VIs.

65B—Pacolet sandy loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad, convex ridgetops. Areas of the soil commonly are irregularly rounded or oblong. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is brown sandy loam about 6 inches thick. The subsoil is yellowish red and red clay loam and clay about 26 inches thick. The substratum to a depth of 60 inches or more is multicolored red, yellowish red, and strong brown sandy clay loam derived from strongly weathered granite.

Included with this soil in mapping are small areas of well drained to excessively drained Louisburg soils and well drained Wedowee soils. The Louisburg soils are on the more sloping positions. The Wedowee soils are on the least sloping landscape positions. Also included are areas of soils in which bedrock is at a depth of 24 inches and small areas of severely eroded soils that have a red sandy clay loam or clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is low. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled when moist. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and natural fertility are low. This soil commonly is medium acid to very strongly acid, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 4 feet.

Most areas of this soil are farmed. Some areas are in woodland, and a few areas are in urban development.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

The low strength and the moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength limits use of this soil as a building site, and the clayey subsoil limits excavations. The moderate permeability limits septic tank absorption fields. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

65C—Pacolet sandy loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow, convex ridgetops, and convex side slopes. Areas of this soil commonly are irregularly oblong. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is brown sandy loam about 6 inches thick. The subsoil is yellowish red and red clay loam and clay about 26 inches thick. The substratum to a depth of 60 inches or more is multicolored red, yellowish red, and strong brown sandy clay loam derived from strongly weathered granite.

Included with this soil in mapping are small areas of well drained to excessively drained Louisburg soils and well drained Wedowee soils. The Louisburg soils are on the more sloping positions. The Wedowee soils are scattered throughout the mapped area. Also included are areas in which bedrock is at a depth of 24 inches and small areas of severely eroded soils that have a red sandy clay loam or clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled when moist. The subsoil has low shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and the natural fertility are low. This soil commonly is medium acid to very strongly acid, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 4 feet.

Most areas of this soil are in permanent pasture. Some areas are in woodland, and a few areas are in urban development.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, and moderately permeable, clayey subsoil are the main limitations for nonfarm uses. Slope and the low strength limit use of this soil as a building site, and the clayey subsoil limits excavations. Slope and moderate permeability are limitations for septic tank absorption fields. Slope is a limitation for recreational development. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

66C—Parker very stony loam, 7 to 15 percent slopes. This deep, strongly sloping, excessively drained soil is on convex ridgetops. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 300 to 500 feet long. Areas of this soil are along the ridges and are irregularly shaped. They range from 5 to about 20 acres.

Typically, the surface layer is dark brown and brownish yellow very stony loam 14 inches thick. The subsoil about 24 inches thick is mostly dark yellowish brown extremely cobbly loam. The substratum to a depth of 67 inches is yellowish brown very stony sandy loam. Hard granite gneiss is at a depth of 67 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of well drained Chester and Porters soils. The Chester soils are throughout the mapped area. The Porters soils generally are on the north- and west-facing slopes. Also included are small areas of soils that have an extremely stony surface layer, of soils that have slopes of less than 7 percent, and of outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is low. Runoff is rapid. The hazard of erosion is severe. The organic matter content is moderate, and the natural fertility is low. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 30 inches. The surface layer and subsoil are very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 4 feet.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses by erosion are excessive.

Potential productivity for trees on this soil is moderately high. The soil is managed for mixed hardwoods and pines. The survival of seeds and seedlings is affected by droughtiness during the growing season.

Depth to bedrock, stoniness, and slope are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. This soil is fair as a source of roadfill.

This soil is in capability subclass VIs.

66D—Parker very stony loam, 15 to 25 percent slopes. This deep, moderately steep, excessively drained soil is on side slopes of mountains. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 400 to 1,000 feet long. Areas of this soil are wide and winding. They range from 10 to about 60 acres.

Typically, the surface layer is dark brown and brownish yellow very stony loam about 14 inches thick. The subsoil is mostly dark yellowish brown extremely cobbly loam about 24 inches thick. The substratum to a depth of 67 inches is yellowish brown very stony sandy loam. Hard granite gneiss is at a depth of 67 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of well drained Chester and Porters soils. The Chester soils are throughout the mapped area. The Porters soils generally are on the north- and west-facing slopes. Also included are small areas of soils that have an extremely stony surface layer and small areas of outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is low. Runoff is rapid. The hazard of erosion is severe. The natural fertility is low, and the organic matter content is moderate. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 30 inches. The surface layer and subsoil are very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 4 feet.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of tillage equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, rotation of pasture, controlled grazing, and the use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff and soil losses by erosion are excessive.

Potential productivity for trees on this soil is moderately high. The soil is managed for mixed hardwoods and pines. The survival of seeds and seedlings is affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and to help control erosion. The slope limits safe operation of heavy equipment.

Slope, stoniness, and depth to bedrock are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. The soil is fair as a source of roadfill.

This soil is in capability subclass VIs.

66E—Parker very stony loam, 25 to 45 percent slopes. This deep, steep, excessively drained soil is on side slopes of mountains. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 400 to 1,000 feet long. Areas of this soil are wide and winding. They range from 10 to about 60 acres.

Typically, the surface layer is dark brown and brownish yellow very stony loam about 14 inches thick. The subsoil is mostly dark yellowish brown extremely cobbly loam about 24 inches thick. The substratum to a depth of 67 inches is yellowish brown very stony sandy loam. Hard granite gneiss is at a depth of 67 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of well drained Chester and Porters soils. The Chester soils are throughout the mapped area. The Porters soils generally are on the north- and west-facing slopes. Also included are small areas of soils that have an extremely stony surface layer and small areas of outcrops of rock. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is low. Runoff is very rapid. The hazard of erosion is very severe. The natural fertility is low, and the organic matter content is moderate. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 30 inches. The surface layer and subsoil are very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 4 feet.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface and steep slopes make the use of tillage equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff and soil losses by erosion are excessive.

Potential productivity for trees on this soil is moderately high. The soil is managed for mixed hardwoods and pines. The survival of seeds and seedlings is affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and to help control erosion. The slope limits safe operation of heavy equipment.

Slope, stoniness, and depth to bedrock are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. The soil is poor as a source of roadfill.

This soil is in capability subclass VIIs.

67D—Parker extremely stony loam, 15 to 25 percent slopes. This deep, moderately steep, excessively drained soil is on side slopes of mountains and narrow ridgetops. Stones, 1/2 foot to 3 feet apart, cover 15 to 50 percent of the surface. Slopes are smooth and about 400 to 1,000 feet long. Areas of this soil are wide and winding. They range from 10 to about 60 acres.

Typically, the surface layer is dark brown and brownish yellow very stony loam about 14 inches thick. The subsoil is mostly dark yellowish brown extremely cobbly loam about 24 inches thick. The substratum to a depth of 67 inches is yellowish brown very stony sandy loam. Hard granite gneiss is at a depth of 67 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of well drained Chester and Porters soils. The Chester soils are throughout the mapped area. The Porters soils generally are on north- and west-facing slopes. Also included are small areas of soils that have a very stony surface layer, of soils that have slopes of more than 25 percent, and of outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is low. Runoff is rapid. The hazard of erosion is severe. The natural fertility is low, and the organic matter content is moderate. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 30 inches. The surface layer and subsoil are very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 4 feet.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of modern equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, rotation of pasture, deferment of grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff and soil losses by erosion are excessive.

Potential productivity for trees on this soil is moderately high. The soil is managed for mixed hardwoods and pines. The survival of seeds and seedlings is affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and to help control erosion. The slope limits safe operation of heavy equipment.

Slope, stoniness, and depth to bedrock are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. The soil is fair as a source of roadfill.

This soil is in capability subclass VIIs.

67E—Parker extremely stony loam, 25 to 60 percent slopes. This deep, steep to very steep, excessively drained soil is on side slopes of mountains and bluffs. Stones, 1/2 foot to 3 feet apart, cover 15 to 50 percent of the surface. Slopes are smooth and about 400 to 1,000 feet long. Areas of this soil are wide and are along the ridges. They range from 10 to about 60 acres.

Typically, the surface layer is dark brown and brownish yellow very stony loam about 14 inches thick. The subsoil is mostly dark yellowish brown extremely cobbly loam about 24 inches thick. The substratum to a depth of 67 inches is yellowish brown very stony sandy loam. Hard granite gneiss is at a depth of 67 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of well drained Chester and Porters soils. The Chester soils are on the less sloping positions. The Porters soils generally are on the north- and west-facing, less sloping positions. Also included are small areas of soils that have a very stony surface layer and small areas of outcrops of rock. The included soils and outcrops make up about 25 percent of mapped areas.

Most areas of this soil are in woodland. A few small areas are in pasture.

This soil is not suited to hay and cultivated crops. The steep slope and stones on the surface make the use of tillage equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff and soil losses by erosion are excessive.

Potential productivity for trees on this soil is moderately high. The soil is managed for mixed hardwoods and pines. The survival of seeds and seedlings is affected by droughtiness during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

Slope, stoniness, and depth to bedrock are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. The soil is poor as a source of roadfill.

This soil is in capability subclass VIIs.

68B—Penn silt loam, 2 to 7 percent slopes. This moderately deep, gently sloping, well drained soil is on convex ridgetops. Slopes are smooth and 100 to 500 feet long. Areas of this soil commonly are irregularly rounded or elongated. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 7 inches thick. The subsoil is red silty clay loam and shaly silty clay loam about 14 inches thick. The substratum to a depth of 29 inches is red extremely shaly silty clay loam. Rippable shale bedrock is at a depth of 29 inches.

Included with this soil in mapping are small areas of moderately well drained to well drained Manassas soils and well drained Klinesville and Totier soils. The Manassas soils are in depressions and along small drainageways. The Klinesville and Totier soils are throughout the mapped area. Also included are small areas of soils that have a shaly surface layer and of severely eroded soils in which the surface layer is red silty clay loam. Included soils make up about 20 percent of mapped areas.

Permeability is moderate to moderately rapid, and available water capacity is low. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone is restricted to a depth of less than 40 inches by bedrock. The organic matter content is low, and the natural fertility is medium. This soil commonly is slightly acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of less than 40 inches.

Most areas of this soil are in pasture or hayland. Some areas are in cropland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Alfalfa commonly is short lived because of the shallow rooting depth. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The depth to bedrock, potential frost action, and seepage are the main limitations for nonfarm uses. The depth to bedrock limits use of this soil as a building site. Seepage and the depth to bedrock are limitations for most sanitary facilities. The depth to bedrock and excess fines limit use of the soil as a source of roadfill. Slope is a limitation for playgrounds. The soil is good for use as openland wildlife habitat and fair for use as woodland wildlife habitat.

This soil is in capability subclass IIe.

68C—Penn silt loam, 7 to 15 percent slopes. This moderately deep, strongly sloping, well drained soil is on convex side slopes and the points of ridges. Slopes are smooth and 400 to 600 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 7 inches thick. The subsoil is red silty clay loam and shaly silty clay loam about 14 inches thick. The substratum to a depth of 29 inches is red extremely shaly silty clay loam. Rippable shale bedrock is at a depth of 29 inches.

Included with this soil in mapping are small areas of moderately well drained to well drained Manassas soils and well drained Klinesville and Totier soils. The Manassas soils are in depressions and along small drainageways. The Klinesville and Totier soils are throughout the mapped area. Also included are small areas of soils that have a shaly surface layer and of severely eroded soils that have a surface layer of red silty clay loam. Included soils make up about 20 percent of mapped areas.

Permeability is moderate to moderately rapid, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone is restricted to a depth of less than 40 inches by bedrock. The organic matter content is low, and the natural fertility is medium. This soil commonly is slightly acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of less than 40 inches.

Most areas of this soil are in pasture or hayland. Some areas are in cropland or woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Alfalfa commonly is short lived because of the shallow rooting depth. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The slope, depth to bedrock, potential frost action, and seepage are the main limitations for nonfarm uses. The depth to bedrock limits use of this soil as a building site. The slope, seepage, and depth to bedrock limit most sanitary facilities. The depth to bedrock and excess fines limit use of the soil as a source of roadfill. Slope is a limitation for recreational development. The soil is good for use as openland wildlife habitat and fair for use as woodland wildlife habitat.

This soil is in capability subclass IIIe.

68D—Penn silt loam, 15 to 25 percent slopes. This moderately deep, moderately steep, well drained soil is on convex side slopes. Slopes are smooth and 100 to 400 feet long. Areas of this soil commonly are long and winding. They range from 3 to about 25 acres.

Typically, the surface layer of this soil is reddish brown silt loam, about 7 inches thick. The subsoil is red silty clay loam and shaly silty clay loam about 14 inches thick. The substratum to a depth of 29 inches is red extremely shaly silty clay loam. Rippable shale bedrock is at a depth of 29 inches.

Included with this soil in mapping are small areas of well drained Klinesville and Totier soils. These soils are throughout the mapped area. Also included are small areas of severely eroded soils that have a surface layer of red silty clay loam. Included soils make up about 20 percent of mapped areas.

Permeability is moderate to moderately rapid, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone is restricted to a depth of less than 40 inches by bedrock. The organic matter content is low, and the natural fertility is medium. This soil commonly is slightly acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of less than 40 inches.

Most areas of this soil are in pasture and hayland. Some areas are in woodland.

This soil is poorly suited to cultivated crops. The hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Alfalfa commonly is short lived because of the shallow rooting depth. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

Slope, depth to bedrock, and seepage are the main limitations for nonfarm uses. The slope limits use of this soil as a building site. Slope, seepage, and depth to bedrock limit use of the soil for most sanitary facilities. The slope, depth to bedrock, and excess fines limit use of the soil as a source of roadfill. Slope is a limitation for recreational development. The soil is good for openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

69—Pits, quarry. This map unit consists of open excavations from which granite, greenstone, or soapstone is mined. The quarries commonly are 50 to more than 300 feet deep. The sides are generally steep, and the floor is relatively level. The shape of the quarries can be irregular or almost square depending on the nature of the rock and ownership boundaries. The quarries range from 2 to about 60 acres.

Included in mapping are pools of water and spoil piles in and around some of the quarries. These inclusions make up less than 15 percent of mapped areas.

The quarries are not suited to farming or urban uses and are limited for recreational uses.

When abandoned, parts of the quarries become overgrown with vegetation. If abandoned quarries are used as a dump, the hazard of ground water contamination is very severe. Some quarries hold water and are suitable as recreational areas.

This map unit is not assigned to a capability subclass.

70C—Porters very stony loam, 7 to 15 percent slopes. This deep, sloping to strongly sloping, well drained soil is on convex ridgetops. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 200 to 500 feet long. Areas of this soil are along the ridges and are irregular in shape. They range from 5 to 20 acres.

Typically, the surface layer is black cobbly loam 8 inches thick. The subsoil is mostly brown and dark yellowish brown loam about 24 inches thick. The substratum to a depth of 59 inches is brownish yellow sandy loam. Hard granodiorite is at a depth of 59 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of somewhat excessively drained Ashe soils, well drained Chester soils, and excessively drained Parker soils. The Chester soils are throughout the mapped area. The Ashe and Parker soils generally are near the breaks to the steeper positions and are near outcrops of rock. Also included are small areas of soils that do not have stones on the surface, small areas of soils that have slopes of less than 7 percent, and small areas of outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. The organic matter content is moderate to high, and the natural fertility is medium. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 30 inches. The surface layer and subsoil are very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and the use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses by erosion are excessive.

Potential productivity for trees on this soil is high. The soil is managed for mixed hardwoods and pines. Thinning stands for rapid growth, clear cutting, replanting with fast growing species, and removal of insect- or disease-infected trees help increase timber production.

The depth to bedrock, stoniness, and slope are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. The soil is limited for use as a source of roadfill because of the depth to rock and excess fines.

This soil is in capability subclass VIs.

70D—Porters very stony loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on side slopes of mountains. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 300 to 600 feet long. Areas of this soil are wide and winding. They range from 10 to about 20 acres.

Typically, the surface layer is black cobbly loam about 8 inches thick. The subsoil is mostly brown and dark yellowish brown loam about 24 inches thick. The substratum to a depth of 59 inches is brownish yellow sandy loam. Hard granodiorite is at a depth of 59 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of somewhat excessively drained Ashe soils, well drained Chester soils, and excessively drained Parker soils. The Chester soils are throughout the mapped area. The Ashe and Parker soils generally are near the breaks to steeper positions and around outcrops of rock. Also included are small areas of soils that do not have stones on the surface and small areas of outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. The natural fertility is medium, and the organic matter content is high. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 30 inches. The surface layer and subsoil are very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and the use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff and soil losses by erosion are excessive.

Potential productivity for trees on this soil is high. The soil is managed for mixed hardwoods and pines. Thinning stands for rapid growth, clear cutting, replanting with fast-growing species, and removal of insect- or disease-infected trees help increase timber production. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Slope, stoniness, and depth to bedrock are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. The soil is limited for use as a source of roadfill because of the depth to rock, the excess fines, and the slope.

This soil is in capability subclass VIs.

70E—Porters very stony loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on side slopes of mountains. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 300 to 600 feet long. Areas of this soil are wide and winding. They range from 10 to about 60 acres.

Typically, the surface layer is black cobbly loam about 8 inches thick. The subsoil is mostly brown and dark yellowish brown loam about 24 inches thick. The substratum to a depth of 59 inches is brownish yellow sandy loam. Hard granodiorite is at a depth of 59 inches.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of somewhat excessively drained Ashe soils, well drained Chester soils, and excessively drained Parker soils. The Chester soils are throughout the mapped area. The Ashe and Parker soils generally are on the steeper positions and around outcrops of rock. Also included are small areas of soils that do not have stones on the surface and small areas of outcrops of rock. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is very rapid. The hazard of erosion is very severe. The natural fertility is medium, and the organic matter content is moderate to high. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 30 inches. The surface layer and subsoil are very strongly acid or strongly acid, unless limed. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface and the steep slope make the use of tillage equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff and soil losses by erosion are excessive.

Potential productivity for trees on this soil is high. The soil is managed for mixed hardwoods and pines. Thinning stands for rapid growth, clear cutting, replanting with fast-growing species, and removal of insect- or disease-infected trees help increase production. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

Slope, stoniness, and depth to bedrock are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. The soil is limited for use as a source of roadfill because of the steep slope and excess fines.

This soil is in capability subclass VIIe.

71B—Rabun clay loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad convex ridgetops. Areas of this soil commonly are irregularly rounded or oblong. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 6 inches thick. The subsoil is mostly dark red clay about 42 inches thick. The substratum is mostly red silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Catoctin, Davidson, and Myersville soils. The Catoctin soils are on the more sloping positions, around outcrops of rock, and near the breaks to steeper slopes. The Davidson and Myersville soils are throughout the mapped area. Also included are small areas of severely eroded soils that have a surface layer of dark red clay and of soils that have stones on the surface. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled when moist, but it breaks up into clods if the soil is tilled when too wet or too dry. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is slightly acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. Some areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, eastern white pine, yellow-poplar, and oaks do well on this soil.

The low strength of the soil and the clayey texture of the subsoil are the main limitations for nonfarm uses. The low strength limits use of this soil for local roads and streets, and the clayey subsoil limits excavations. The clayey subsoil limits sanitary landfills. Slope is a limitation for playgrounds. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

71C—Rabun clay loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and on convex side slopes. Areas of this soil commonly are long and winding. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 6 inches thick. The subsoil is mostly dark red clay about 42 inches thick. The substratum to a depth of 60 inches or more is mostly red silty clay loam.

Included with this soil in mapping are small areas of well drained Catoctin, Davidson, and Myersville soils. The Catoctin soils are on the more sloping positions, near the breaks to steeper slopes, and around outcrops of rock. The Davidson and Myersville soils are throughout the mapped area. Also included are small areas of severely eroded soils that have a dark red clay surface layer and small areas that have stones on the surface. The included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled when moist, but it breaks up into clods if the soil is tilled when too wet or too dry. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is slightly acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. A few areas are in woodland.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high, especially for loblolly pine, eastern white pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, and clayey subsoil are the main limitations for nonfarm uses. Slope and the low strength limit the use of this soil for local roads and streets. Slope and the clayey subsoil limit excavations. Slope and the clayey subsoil limit use of the soil for sanitary landfills. Slope is a limitation for recreational development. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

71D—Rabun clay loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on convex side slopes. Slopes commonly are simple and 400 to 800 feet long. Areas of this soil are elongated or long and winding. They range from 5 to about 15 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 6 inches thick. The subsoil is mostly dark red clay about 42 inches thick. The substratum to a depth of 60 inches or more is red silty clay loam.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Starr soils. The Catoctin soils are mainly on the more sloping positions near the breaks to steeper slopes and around outcrops of rock. The Myersville soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of severely eroded soils that have a dark red clay surface layer, small areas of gullied soils, small areas that have stones on the surface, and small areas of outcrops of rock mainly on the lower part of slopes. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is moderately friable and easily tilled when moist, but it breaks up into clods if the soil is tilled when too wet or too dry. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil is slightly acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland or permanent pasture.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. The soil is somewhat droughty during the growing season, because of the rapid surface runoff, and crop response to lime and fertilizer is somewhat limited by the lack of moisture. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, eastern white pine, yellow-poplar, and oaks do well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope and the clayey subsoil are the main limitations for nonfarm uses. Slope limits use of this soil as a building site, as a site for most sanitary facilities, and as a site for recreational areas. Slope and the clayey subsoil are limitations for sanitary landfills. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IVe.

71E—Rabun clay loam, 25 to 45 percent slopes. This deep, steep, well drained soil is on convex side slopes. Slopes commonly are simple and are 400 to 800 feet long. Areas of this soil are elongated or long and winding. They range from 10 to about 25 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 6 inches thick. The subsoil is mostly dark red clay about 42 inches thick. The substratum to a depth of 60 inches or more is red silty clay loam.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Starr soils. The Catoctin soils are mainly on the more sloping positions and around outcrops of rock. The Myersville soils are throughout the mapped area. The Starr soils are on foot slopes and along drainageways. Also included are small areas of severely eroded soils that have a dark red clay surface layer, small areas of gullied soils, small areas that have stones on the surface, and small areas of outcrops of rock mainly on the lower part of slopes. The included soils and outcrops make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil is slightly acid to strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland or permanent pasture.

This soil is not suited to cultivated crops. The steep slope makes use of modern tillage equipment impractical. The severe hazard of erosion is a major management concern.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, eastern white pine, yellow-poplar, and oaks do well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope is the main limitation for nonfarm uses. Slope limits use of this soil as a building site, as a site for most sanitary facilities, and as a site for recreational areas. The slope, low strength, and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass VIe.

72B3—Rabun clay, 2 to 7 percent slopes, severely eroded. This soil is deep, gently sloping, and well drained. It is on narrow to broad convex ridgetops. Areas of this soil are 200 to 500 feet wide and are elongated along the ridge and are highly variable in shape. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark red clay about 4 inches thick. The subsoil is dark red clay about 36 inches thick. The substratum is red silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Davidson, Myersville, and Starr soils. The Davidson and Myersville soils commonly are intermingled on the same landscape positions. The Starr soils are in shallow depressions and along drainageways. Also included are small areas of Rabun soils on the steeper slopes. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. Tilth is poor, and the surface layer breaks up into clods if tilled when too wet. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil is strongly acid to slightly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. A few small areas are in permanent pasture or woodland.

This soil is moderately well suited to cultivated crops. The moderate hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops and grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility and reduces crusting and improves soil-seed contact.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, loblolly pine, and eastern white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The clayey subsoil is a limitation for sanitary facilities and for shallow excavations. This soil is fairly well suited to lawns, landscaping, and golf fairways. Low strength and excess fines limit the use of this soil as a source of roadfill. The clayey surface layer limits this soil for recreational development. Slope limits the use of this soil for playgrounds. The soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIIe.

72C3—Rabun clay, 7 to 15 percent slopes, severely eroded. This soil is deep, strongly sloping, and well drained. It is on narrow convex ridgetops and convex side slopes. Areas of this soil are 100 to 300 feet wide and are elongated along the ridge and are highly variable in shape. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark red clay about 4 inches thick. The subsoil is dark red clay about 36 inches thick. The substratum is red silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Catoctin, Davidson, Myersville, and Starr soils. The Catoctin soils are near the breaks to steeper slopes and around outcrops of rock. The Davidson and Myersville soils commonly are scattered throughout the mapped area. The Starr soils are in shallow depressions and along drainageways. Also included are small areas of Rabun soils on steeper slopes. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. Tilth is poor, and the surface layer breaks up into clods if tilled when too wet. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid to slightly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. Some areas are in permanent pasture or woodland.

This soil is poorly suited to cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It also reduces crusting and improves soil-seed contact.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, loblolly pine, and eastern white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The slope and clayey subsoil are limitations for sanitary facilities and excavations. Slope is a limitation for most building sites and for lawns, landscaping, and golf fairways. Low strength and excess fines limit the use of this soil as a source of roadfill. Slope limits recreational development. The soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

72D3—Rabun clay, 15 to 25 percent slopes, severely eroded. This soil is deep, moderately steep, and well drained. It is on side slopes. Areas of this soil are 100 to 300 feet wide and are along the drainage pattern. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark red clay about 4 inches thick. The subsoil is dark red clay about 36 inches thick. The substratum is red silty clay loam to a depth of 60 inches.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Starr soils. The Catoctin soils are near the breaks to steeper slopes and around outcrops of rock. The Myersville soils commonly are scattered throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of Rabun soils on the less steep slopes. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The erosion hazard is severe. Tilth is poor, and the surface layer breaks up into clods if tilled when too wet. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid to slightly acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to cultivated crops because past erosion has removed all or nearly all of the original topsoil.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, loblolly pine, and western white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

This soil is limited for most nonfarm uses because of the steep slope. The slope and clayey subsoil are limitations for sanitary facilities. Low strength and excess fines limit the use of this soil as a source of roadfill. Slope limits recreational development. This soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIe.

72E3—Rabun clay, 25 to 45 percent slopes, severely eroded. This soil is deep, steep, and well drained. It is on side slopes. Areas of this soil are 100 to 300 feet wide and are along the drainage pattern. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark red clay about 4 inches thick. The subsoil is dark red clay about 36 inches thick. The substratum is red silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Starr soils. The Catoctin and Myersville soils commonly are intermingled on the same landscape positions. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of Rabun soils on the less steep slopes. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to hay and cultivated crops. Past erosion has removed all or nearly all of the original topsoil. The steep slope makes use of modern equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, loblolly pine, and eastern white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

This soil is limited for most nonfarm uses because of the steep slope. The slope is a limitation for sanitary facilities. Slope, low strength, and excess fines limit the use of this soil as a source of roadfill. Slope limits recreational development. The soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIIe.

73C—Rabun very stony clay loam, 7 to 15 percent slopes. This soil is deep, strongly sloping, and well drained. It is on narrow ridgetops and side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are 200 to 300 feet wide and are along the drainage pattern. They range from 10 to about 30 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 6 inches thick. The subsoil is dark red clay about 42 inches thick. The substratum is red silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Catoctin, Davidson, Myersville, and Starr soils. The Catoctin, Davidson, and Myersville soils commonly are intermingled on the same landscape positions. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of Rabun soils on the less steep slopes and areas of soils that do not have stones on the surface. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of tillage equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, loblolly pine, and eastern white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses because of the steep slope. The slope and clayey subsoil are limitations for sanitary facilities. Low strength and excess fines limit the use of this soil as a source of roadfill. Slope limits the use of this soil for recreational development. The soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIs.

73D—Rabun very stony clay loam, 15 to 25 percent slopes. This soil is deep, moderately steep, and well drained. It is on side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are 200 to 300 feet wide and are along the drainage pattern. They range from 10 to about 40 acres or more.

Typically, the surface layer of this soil is dark reddish brown clay loam about 6 inches thick. The subsoil is dark red clay about 42 inches thick. The substratum is red silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Starr soils. The Catoctin and Myersville soils commonly are intermingled on the same landscape positions. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of Rabun soils on the less steep slopes and areas of soils that do not have stones on the surface. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled or deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, loblolly pine, and eastern white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

This soil is limited for most nonfarm uses because of the steep slope. The slope and clayey subsoil are limitations for sanitary facilities. Low strength and excess fines limit the use of this soil as a source of roadfill. Slope limits the use of this soil for recreational development. The soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIs.

73E—Rabun very stony clay loam, 25 to 45 percent slopes. This soil is deep, steep, and well drained. It is on side slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Areas of this soil are 200 to 300 feet wide and are along the drainage pattern. They range from 10 to about 40 acres.

Typically, the surface layer of this soil is dark reddish brown clay loam about 6 inches thick. The subsoil is dark red clay about 42 inches thick. The substratum is red silty clay loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Catoctin, Myersville, and Starr soils. The Catoctin and Myersville soils commonly are intermingled on the same landscape positions. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of Rabun soils on the less steep slopes and areas of soils that do not have stones on the surface. Included soils make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to hay and cultivated crops. The stones on the surface and steep slope make the use of tillage equipment impractical.

This soil is poorly suited to pasture crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is high, especially for yellow-poplar, oaks, loblolly pine, and eastern white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

This soil is limited for most nonfarm uses because of the steep slope. The slope and clayey subsoil are limitations for sanitary facilities. Low strength, slope, and excess fines limit the use of this soil as a source of roadfill. Slope limits recreational development. The soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIIs.

74B—Rapidan silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad convex ridgetops. Slopes are smooth and about 200 to 500 feet long. Areas of this soil commonly are irregularly rounded or oblong. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark reddish brown silt loam about 6 inches thick. The subsoil is mostly dark red clay about 48 inches thick. The substratum to a depth of more than 60 inches is mostly reddish brown silty clay loam mottled in shades of red, yellow, and brown.

Included with this soil in mapping are small areas of well drained Hiwassee, Starr, and Totier soils. The Hiwassee and Totier soils are throughout the mapped area. The Starr soils are in depressions and along small drainageways. Also included are small areas of severely eroded soils that have a surface layer of dark reddish brown silty clay loam and small areas of soils that have stones on the surface. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and is easily tilled when moist. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and natural fertility are medium. This soil commonly is medium acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. Some areas are in woodland, and some areas are in pasture.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, eastern white pine, yellow-poplar, and oaks do well on this soil.

The low strength, moderate shrink-swell potential, depth to rock, and the clayey texture of the subsoil are the main limitations for nonfarm uses. The low strength and shrink-swell potential limit use of this soil for local roads and streets, and the clayey subsoil and depth to rock limit excavations. The clayey subsoil and depth to rock limit use of the soil for sanitary facilities. Slope is a limitation for playgrounds. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIe.

74C—Rapidan silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and on convex side slopes. Slopes are smooth and 200 to 600 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 40 acres.

Typically, the surface layer of this soil is dark reddish brown silt loam about 6 inches thick. The subsoil is mostly dark red clay about 48 inches thick. The substratum to a depth of 60 inches or more is mostly reddish brown silty clay loam mottled in shades of red, yellow, and brown.

Included with this soil in mapping are small areas of well drained Penn, Starr, and Totier soils. The Penn and Totier soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of severely eroded soils that have a dark reddish brown silty clay loam surface layer and small areas of soils that have stones on the surface. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled when moist. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and natural fertility are medium. This soil commonly is medium acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. A few areas are in woodland or pasture.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil, increases runoff, and increases erosion.

Potential productivity for trees on this soil is high, especially for loblolly pine, eastern white pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, moderate shrink-swell potential, depth to rock, and clayey subsoil are the main limitations for nonfarm uses. Slope, shrink-swell potential, and low strength limit the use of this soil for local roads and streets. Slope, depth to rock, and a clayey subsoil limit excavations and use of the soil for most sanitary facilities. Slope is a limitation for recreational development. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

74D—Rapidan silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on convex side slopes. Slopes commonly are simple and are 200 to 800 feet long. Areas of this soil are elongated or long and winding. They range from 5 to about 20 acres.

Typically, the surface layer of this soil is dark reddish brown silt loam about 6 inches thick. The subsoil is mostly dark red clay about 48 inches thick. The substratum to a depth of 60 inches or more is reddish brown silty clay loam mottled in shades of red, yellow, and brown.

Included with this soil in mapping are small areas of well drained Klinesville, Penn, Starr, and Totier soils. The Klinesville soils are mainly on the more sloping positions, near the breaks to steeper slopes and around outcrops of rock. The Penn and Totier soils are throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of severely eroded soils that have a dark reddish brown silty clay loam surface layer, small areas of gullied soils, and small areas that have stones on the surface. Included soils make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is moderately friable and easily tilled when moist. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and natural fertility are medium. This soil is medium acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland or permanent pasture.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. The soil is somewhat droughty during the growing season, because of the rapid surface runoff, and crop response to lime and fertilizer is somewhat limited by this lack of moisture. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, eastern white pine, yellow-poplar, and oaks do well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

The slope, depth to rock, and clayey subsoil are the main limitations for nonfarm uses. Slope limits use of this soil as a building site, as a site for most sanitary facilities, and as a site for recreational areas. Slope, depth to rock, and the clayey subsoil limit use of the soil for sanitary landfills. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IVe.

75C3—Rapidan silty clay loam, 7 to 15 percent slopes, severely eroded. This soil is deep, strongly sloping, and well drained. It is on narrow, convex ridgetops and convex side slopes. Areas of this soil are 200 to 900 feet wide and are elongated along the ridge and are highly variable in shape. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark reddish brown silty clay loam about 4 inches thick. The subsoil is dark red clay about 42 inches thick. The substratum is mostly reddish brown silty clay loam mottled in shades of red, yellow, and brown to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Penn, Starr, and Totier soils. The Penn and Totier soils commonly are scattered throughout the mapped area. The Starr soils are in shallow depressions and along small drainageways. Also included are small areas of Rapidan soils that are not severely eroded. Included soils make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. Tilth is poor, and the surface layer breaks up into clods if tilled when too wet. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. Some areas are in permanent pasture or woodland.

This soil is poorly suited to cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, using cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and control erosion. Increasing the organic matter content of this soil improves tilth, infiltration, and fertility. It also reduces crusting and improves soil-seed contact.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer and reduces plant growth and increases runoff and erosion.

The potential productivity for trees on this soil is moderately high, especially for yellow-poplar, oaks, loblolly pine, and eastern white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling.

This soil is limited for most nonfarm uses. The slope, depth to rock, and clayey subsoil are limitations for sanitary facilities and excavations. Slope, moderate shrink-swell potential, and depth to rock are limitations for most building sites. Slope limits this soil for lawns, landscaping, and golf fairways. Low strength and excess fines limit the use of this soil as a source of roadfill. Slope limits recreational development. The soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

75D3—Rapidan silty clay loam, 15 to 25 percent slopes, severely eroded. This soil is deep, moderately steep, and well drained. It is on side slopes. Areas of this soil are 200 to 500 feet wide and are along the drainage pattern. They range from 5 to about 20 acres.

Typically, the surface layer of this soil is dark reddish brown silty clay loam about 4 inches thick. The subsoil is dark red clay about 42 inches thick. The substratum is reddish brown silty clay loam mottled in shades of red, yellow, and brown to a depth of 60 inches.

Included with this soil in mapping are small areas of well drained Klinesville, Penn, Starr, and Totier soils. The Klinesville soils are near the breaks to steeper slopes and around outcrops of rock. The Penn and Totier soils commonly are scattered throughout the mapped area. The Starr soils are on foot slopes and along small drainageways. Also included are small areas of Rapidan soils that are not severely eroded. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. Tilth is poor, and the surface layer breaks up into clods if tilled when too wet. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in permanent pasture or woodland.

This soil is not suited to cultivated crops because past erosion has removed all or nearly all of the original topsoil.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of adapted grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and increases runoff and erosion.

The potential productivity for trees on this soil is moderately high, especially for yellow-poplar, oaks, loblolly pine, and eastern white pine. Seeds and seedlings survive and grow well if competing vegetation is controlled. The conditions for survival and growth can be improved by good site preparation, including cutting, spraying, mowing, and girdling. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment.

This soil is limited for most nonfarm uses because of the steep slope. The slope, depth to rock, and clayey subsoil are limitations for sanitary facilities. Low strength, slope, and excess fines limit the use of this soil as a source of roadfill. Slope limits recreational development. The soil is good for use as woodland wildlife habitat.

This soil is in capability subclass VIe.

76—Riverview loam. This deep, nearly level, well drained soil is on flood plains along the rivers and large streams. Areas of this soil commonly are elongated along the course of the adjacent stream. They range from 5 to about 30 acres.

Typically, the surface layer is dark brown loam about 12 inches thick. The subsoil is about 23 inches thick. It is dark brown and brown, friable silt loam and loam. The substratum to a depth of 60 inches is dark yellowish brown silt loam.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of excessively drained Buncombe soils, somewhat poorly drained Chewacla soils, and poorly drained Wehadkee soils. The Buncombe soils are on low lying, elongated ridges and along streambanks. The Chewacla and Wahadkee soils are in depressions generally away from the adjacent stream or river. Also included are small areas of very gravelly soils in abandoned channels. Included soils make up about 25 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Runoff is slow. Tilth is good. Natural fertility is moderate, and organic matter content is low. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 60 inches. The surface layer and subsoil commonly are very strongly acid or strongly acid, unless limed. The depth to bedrock is generally more than 5 feet and not usually a factor in the use of this soil. Flooding occurs occasionally for brief periods during winter and early in spring, and a seasonal high water table is between depths of 3 and 5 feet.

Most areas of this soil are farmed and in cultivated crops. A few areas are in hay or pasture.

This soil is well suited to cultivated crops. The hazard of erosion is slight and is not a major management concern. Occasional flooding is a hazard to some crops, especially winter grains. Some management concerns are the need to increase organic matter and the use of lime and fertilizer according to soil tests. If the soil is cultivated, conservation tillage, use of cover crops, and including grasses and legumes in the cropping system help increase organic matter and maintain the tilth of the soil. Crop residue should be kept on or near the surface.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management.

Potential productivity for trees on this soil is very high. The soil is managed mostly for hardwoods. Seeds and seedlings survive and grow well on this soil.

Flooding is the main limitation for nonfarm uses. It is a limitation for most sanitary facilities, building sites, and recreational areas. The soil is good as a source of material for roadfill.

This soil is in capability subclass IIw.

77—Riverview-Chewacla complex. This complex consists of deep, nearly level, well drained and somewhat poorly drained soils on flood plains along smaller streams. Areas of this complex are commonly elongated and parallel to the adjacent stream. They range from 10 to about 50 acres.

This complex is about 50 percent Riverview soils and 40 percent Chewacla soils. Other soils make up the rest.

Typically, the surface layer of the Riverview soil is dark brown loam about 12 inches thick. The subsoil is dark brown and brown, friable silt loam and loam about 23 inches thick. The substratum to a depth of 60 inches is dark yellowish brown silt loam.

Typically, the surface layer of the Chewacla soil is dark brown silt loam about 8 inches thick. The upper 18 inches of the subsoil is light yellowish brown silt loam and pale brown silty clay loam, and the lower part to a depth of 60 inches is mostly light brownish gray and yellowish brown silty clay loam and silt loam.

Included with this complex in mapping are small intermingled areas, generally less than 2 acres, of excessively drained Buncombe soils and poorly drained Wehadkee soils. The Buncombe soils are on low lying, elongated ridges and along streambanks. The Wehadkee soils are in depressions generally away from the adjacent stream. The included soils make up about 10 percent of mapped areas.

Permeability of these soils is moderate, and available water capacity is high. Runoff is slow. Tilth is good. The natural fertility is moderate, and the organic matter content is low. The subsoil in both soils has low shrink-swell potential. The root zone extends to a depth of more than 36 inches. The surface layer and subsoil commonly are very strongly acid to medium acid, unless limed. Bedrock is generally deep. Flooding occurs occasionally for brief periods during winter and early in spring. During winter and early in spring, the high water table is between depths of 1/2 foot and 1 1/2 feet in the Chewacla soil and between depths of 3 and 5 feet in the Riverview soil.

Most areas of this complex are used for cultivated crops. A few areas are in pasture or woodland.

Areas of this complex are well suited to cultivated crops when drained and protected from flooding. The hazard of erosion is slight and is not a major management concern. Seasonal wetness is a concern for small grains and alfalfa, and drainage is needed for the Chewacla soil. The need to increase organic matter content and applying lime and fertilizer according to soil tests to maintain fertility are management concerns. Conservation tillage, the use of cover crops, and including grasses and legumes in the cropping system help increase organic matter content and maintain tilth. Crop residue should be kept on or near the surface.

These soils are well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management.

Potential productivity for trees on this complex is very high. The soil is managed mostly for hardwoods. Seeds and seedlings are limited by the seasonal wetness of the Chewacla soil.

Flooding and wetness are the main limitations for nonfarm uses. Flooding and wetness are limitations for most sanitary facilities, building sites, and recreational areas. This complex is a poor source of roadfill.

This complex is in capability subclass IIIw.

78—Rowland silt loam. This deep, nearly level, moderately well drained to somewhat poorly drained soil is on flood plains. Slopes are 0 to 2 percent. Areas of this low-lying soil commonly are long and narrow. They range from 5 to about 30 acres.

Typically, the surface layer of this soil is dark reddish brown silt loam about 11 inches thick. The subsoil is 27 inches thick. The upper part of the subsoil to a depth of 30 inches is mostly reddish brown silt loam and has pinkish gray mottles below a depth of 16 inches. The lower part of the subsoil to a depth of 38 inches is multicolored reddish brown, gray, and strong brown silty clay loam. The substratum to a depth of 60 inches is yellowish red very gravelly silt loam and has weak red and gray mottles.

Included with this soil in mapping are small areas of well drained Bermudian soils, well drained to moderately well drained Manassas soils, and poorly drained Wehadkee soils. The Bermudian soils are on slightly higher positions, mainly close to the stream. The Manassas soils are on higher positions, generally away from the stream and on foot slopes. The Wehadkee soils are in depressions and on flats generally away from the stream at the base of upland side slopes. Also included are small areas of sandy soils and gravelly soils. Included soils make up about 15 percent of mapped areas.

Permeability is moderate or moderately slow, and available water capacity is high. Surface runoff is slow. The hazard of erosion is slight. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is medium acid or strongly acid throughout, but reaction of the surface layer varies because of local liming. Flooding occurs occasionally for brief periods during winter and early in spring. A seasonal high water table is at a depth of 1 foot to 3 feet during winter and spring.

Most areas of this soil are in pasture. A few areas are in woodland, and a few areas are in cultivated cropland.

This soil is well suited to cultivated crops. Alfalfa is short lived because of seasonal wetness. When lime and fertilizer are applied according to soil tests, crops respond well. The soil is wet and cold in spring, and wetness commonly interferes with tillage. If the soil is not protected from flooding, crops are damaged by brief flooding on an average of once or less every 2 years. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, drainage, control of flooding, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is high, especially for loblolly pine, yellow-poplar, and sweetgum. Seeds and seedlings are limited by the seasonal wetness. The soil is soft when wet, and the use of heavy equipment is limited during wet periods.

The shallow depth to the seasonal high water table and flooding are the main limitations for nonfarm uses. The seasonal high water table and flooding prevent use of this soil as a building site or as a site for most sanitary facilities. The water table and flooding limit recreational areas. Many areas dry out slowly in spring and after heavy rains. Excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIw.

79B—Starr silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on foot slopes, in depressions, and along small drainageways. Slopes are smooth, slightly concave, and about 100 to 400 feet long. Most areas of this soil are long and winding. They range from 3 to about 15 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 18 inches thick. The subsoil is about 35 inches thick. It is mostly reddish brown silty clay loam.

The substratum to a depth of 60 inches or more is reddish brown loam.

Included with this soil in mapping are small areas of well drained Davidson, Dyke, and Rabun soils, well drained to moderately well drained Meadowville soils, and moderately well drained to somewhat poorly drained Mount Lucas soils. The Davidson, Dyke, and Rabun soils are on the higher positions and low ridges. The Meadowville and Mount Lucas soils are throughout the mapped area. Also included are small areas of gravelly soils. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled through a wide range of soil moisture. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 50 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid to slightly acid throughout, but reaction in the surface layer is variable because of local liming. The depth to bedrock is generally more than 6 feet.

Most areas of this soil are farmed. Some areas are in pasture, and a few areas are in woodland.

This soil is well suited to cultivated crops. The moderate hazard of erosion and runoff from higher lying areas are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing or grazing when the soil is wet causes compaction of the surface soil, and damages stands of grasses and legumes.

Potential productivity for trees on this soil is very high, especially for loblolly pine, yellow-poplar, sweetgum, and oaks. Seeds and seedlings survive and grow well.

The moderate shrink-swell potential, low strength, and moderate permeability in the subsoil are the main limitations for nonfarm uses. The low strength and shrink-swell potential limit use of this soil for local roads and streets and as a building site. The moderate permeability of the subsoil limits most sanitary facilities. Slope is a limitation for playgrounds. The low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

80B—Tatum silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to moderately wide convex ridgetops. Areas of this soil commonly are irregularly rounded or oblong. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is grayish brown and light yellowish brown silt loam about 6 inches thick. The subsoil is mostly red silty clay, clay, and silty clay loam about 36 inches thick. The substratum to a depth of 51 inches is multicolored yellow, red, brown, and gray channery silt loam.

Included with this soil in mapping are small areas of moderately well drained Abell soils, somewhat excessively drained Manteo soils, and well drained Nason soils. The Abell soils are around the heads of small drainageways. The Manteo and Nason soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil is commonly strongly acid or very strongly acid throughout, but reaction in ths surface layer is variable because of local liming. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland. Some areas are farmed.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The high acidity and high content of aluminum are major limitations for this soil. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, moderate shrink-swell potential, and the moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The moderately permeable subsoil limits use of the soil for septic tank absorption fields. Permeability of the substratum commonly is not a limiting factor for septic tank absorption fields. Low strength and excess fines limit the use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

80C—Tatum silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex ridgetops and convex side slopes. Areas of this soil commonly are long and winding. They range from 5 to about 25 acres.

Typically, the surface layer of this soil is grayish brown and light yellowish brown silt loam about 6 inches thick. The subsoil is mostly red silty clay, clay, and silty clay loam about 36 inches thick. The substratum to a depth of 51 inches is multicolored red, yellow, brown, and gray channery silt loam.

Included with this soil in mapping are small areas of moderately well drained Abell soils, somewhat excessively drained Manteo soils, and well drained Nason soils. The Abell soils are around the heads of drainageways, along drainageways, and on toe slopes. The Manteo and Nason soils are mainly on ridgetops and points of ridges. Also included are small areas of soils that have a gravelly surface layer and of severely eroded soils that have a red clay or silty clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled when moist. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 40 inches.

Most areas of this soil are in woodland. Some areas are farmed.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The high acidity and high content of aluminum are major limitations for this soil. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, moderate shrink-swell potential, and moderately permeable clayey subsoil are the main limitations for nonfarm uses. Slope, the low strength, and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. Slope and the moderately permeable subsoil limit use of the soil for septic tank absorption fields and for recreational areas. Permeability of the substratum commonly is not a limiting factor for septic tank absorption fields. Low strength and excess fines limit the use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

81B—Thurmont loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on elongated ridges. Slopes are smooth and about 200 to 400 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark grayish brown and brown loam about 10 inches thick. The subsoil is brown loam and yellowish red clay loam and sandy clay loam about 36 inches thick. The substratum is mostly yellowish red loam mottled with light yellowish brown to a depth of 60 inches.

Included with this soil in mapping are small areas of somewhat poorly drained Belvoir soils, well drained Braddock and Chester soils, and well drained to moderately well drained Meadowville soils. The Belvoir and Meadowville soils are in depressions and around the heads of drainageways. The Braddock and Chester soils are throughout the mapped area. Also included are small areas of soils that have a gravelly or very stony surface layer and severely eroded soils that have a surface layer of yellowish red clay loam. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 4 to 6 feet in December through March. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are farmed. Some areas are in pasture, and a few areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The potential frost action and moderately permeable subsoil are the main limitations for nonfarm uses. The moderately permeable subsoil limits this soil for septic tank absorption fields and for sewage lagoon areas. The potential frost action is a limitation for local roads and streets. Slope is a limitation for playgrounds. The soil is a good source of roadfill.

This soil is in capability subclass IIe.

81C—Thurmont loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow, convex ridgetops and on convex side slopes. Slopes are smooth and about 200 to 400 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 40 acres.

Typically, the surface layer of this soil is dark grayish brown and brown loam about 10 inches thick. The subsoil is about 36 inches thick. It is brown loam and yellowish red clay loam and sandy clay loam. The substratum to a depth of 60 inches is mostly yellowish red loam mottled with light yellowish brown.

Included with this soil in mapping are small areas of somewhat poorly drained Belvoir soils, well drained Braddock and Chester soils, and well drained to moderately well drained Meadowville soils. The Belvoir and Meadowville soils are on foot slopes and around the heads of drainageways. The Braddock and Chester soils are throughout the mapped area. Also included are small areas of soils that have a gravelly or very stony surface layer and small areas of severely eroded soils that have a yellowish red clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled when moist. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 4 to 6 feet from December through March. Bedrock is generally at a depth of more than 60 inches.

Many areas of this soil are farmed. Some areas are in pasture, and some areas are in woodland.

This soil is moderately well suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, moderately permeable subsoil, and potential frost action are the main limitations for nonfarm uses. Slope limits use of this soil as a building site and for recreational development. Slope and the moderately permeable subsoil limit use of the soil for most sanitary facilities. The potential frost action and slope are limitations for local roads and streets. The soil is a good source of roadfill.

This soil is in capability subclass IIIe.

81D—Thurmont loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on convex side slopes leading down to drainageways. Slopes are smooth and about 200 to 400 feet long. Areas of this soil commonly are long and wide. They range from 10 to 30 acres or more.

Typically, the surface layer of this soil is dark grayish brown and brown loam about 10 inches thick. The subsoil is about 36 inches thick. It is brown loam and yellowish red clay loam and sandy clay loam. The substratum to a depth of 60 inches is mostly yellowish red loam mottled with light yellowish brown.

Included with this soil in mapping are small areas of somewhat poorly drained Belvoir soils, well drained Braddock and Chester soils, and well drained to moderately well drained Meadowville soils. The Belvoir and Meadowville soils are on foot slopes and around the heads of drainageways. The Braddock and Chester soils are throughout the mapped area. Also included are small areas of soils that have a very stony surface layer and small areas of severely eroded soils that have a yellowish red clay loam surface layer. Included soils make up about 25 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled when moist. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 4 to 6 feet from December through March. Bedrock is generally at a depth of more than 60 inches.

Many areas of this soil are in woodland. Some areas are in pasture.

This soil is poorly suited to cultivated crops. The severe hazard of erosion is a major management concern. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Seeds and seedlings survive and grow well if competing vegetation is controlled. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and control erosion. The slope limits safe operation of heavy equipment.

The slope is the main limitation for nonfarm uses. Slope limits use of this soil as a building site, for recreational development, and for most sanitary facilities. The slope and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IVe.

82C—Thurmont very stony loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow, convex ridgetops, and convex side slopes. Stones, about 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 200 to 400 feet long. Areas of this soil commonly are long and winding. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is dark grayish brown and brown loam about 10 inches thick. The subsoil is about 36 inches thick. It is brown loam and yellowish red clay loam and sandy clay loam. The substratum to a depth of 60 inches is mostly yellowish red loam with light yellowish brown mottles.

Included with this soil in mapping are small areas of well drained Braddock, Chester, and Hayesville soils. These soils are throughout the mapped area. Also included are small areas of soils that do not have stones on the surface. Included soils make up about 25 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 4 to 6 feet from December through March. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. Sufficient stones are present to make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, moderately permeable subsoil, and stones are the main limitations for nonfarm uses. Slope limits use of this soil as a building site. Slope and the moderately permeable subsoil limit most sanitary facilities. The stones and slope limit use of the soil for recreational development. The soil is a good source of roadfill.

This soil is in capability subclass VIs.

82D—Thurmont very stony loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on side slopes. Stones, about 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth and about 300 to 500 feet long. Areas of this soil commonly are long and wide. They range from 5 to 50 acres.

Typically, the surface layer of this soil is dark grayish brown and brown loam about 10 inches thick. The subsoil is about 36 inches thick. It is brown loam and yellowish red clay loam and sandy clay loam. The substratum to a depth of 60 inches is mostly yellowish red loam with light yellowish brown mottles.

Included with this soil in mapping are small areas of well drained Braddock, Chester, and Hayesville soils.

These soils are throughout the mapped area. Also included are small areas of soils that have stones on the surface. Included soils make up about 25 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is moderate, and the natural fertility is low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 4 to 6 feet from December through March. Bedrock is generally at a depth of more than 60 inches.

Most areas of this soil are in woodland. A few areas are in permanent pasture.

This soil is not suited to hay and cultivated crops. Sufficient stones are present to make use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Loblolly pine, Virginia pine, yellow-poplar, and upland oaks do well on this soil. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope is the main limitation for nonfarm uses. Slope limits use of this soil as a building site and for recreational development. It limits use of the soil for most sanitary facilities and for local roads and streets. The soil is a fair source of roadfill.

This soil is in capability subclass VIIs.

83—Toccoa fine sandy loam. This deep, nearly level, well drained soil is on flood plains. Areas of this low-lying soil commonly are long and narrow. They range from 3 to about 50 acres. Slopes are 0 to 2 percent.

Typically, the surface layer of this soil is dark brown fine sandy loam about 9 inches thick. The substratum to a depth of 60 inches or more is mostly brown and dark yellowish brown sandy loam and fine sandy loam.

Included with this soil in mapping are small areas of excessively drained Buncombe soils, somewhat poorly drained Chewacla soils, and well drained Riverview soils. The Chewacla soils are on the slightly lower positions, mainly farthest from the stream. The Buncombe and Riverview soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer. Included soils make up about 15 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is moderate. Surface runoff is slow. The hazard of erosion is slight. This soil has good tilth. The surface layer is friable and easily tilled. The substratum has low shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is slightly acid or medium acid throughout, but reaction in the surface layer is variable because of local liming. Flooding occurs occasionally for brief periods during winter and spring, and a seasonal high water table is at a depth of 2 1/2 to 5 feet.

Most areas of this soil are in pasture. Some areas are farmed, and a few areas are in woodland.

If this soil is protected from flooding, it is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. If the soil is not protected from flooding, crops are damaged by brief flooding during spring on an average of once every 5 years. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, control of flooding, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing and grazing when the soil is wet causes compaction of the surface soil and damages stands of grasses and legumes.

Potential productivity for trees on this soil is very high, especially for loblolly pine, yellow-poplar, and sweetgum. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Flooding, moderately rapid permeability, and wetness are the main limitations for nonfarm uses. Flooding prevents use of this soil as a building site. Flooding, seepage, and wetness limit most sanitary facilities. Flooding and wetness limit excavations, and flooding limits use of the soil for recreational areas. The soil is a good source of roadfill.

This soil is in capability subclass IIw.

84B—Totier silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on convex ridgetops. Slopes are smooth and 100 to 600 feet long. Areas of this soil commonly are irregularly rounded or elongated. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 8 inches thick. The subsoil is about 32 inches thick. It is yellowish red silty clay loam and red silty clay. The substratum to a depth of 49 inches is red, shaly silty clay. Below this is soft, red shale.

Included with this soil in mapping are small areas of moderately well drained to well drained Manassas soils and well drained Penn and Rapidan soils. The Manassas soils are in depressions and along small drainageways.

The Penn and Rapidan soils are throughout the mapped area. Also included are small areas of severely eroded soils that have a surface layer of yellowish red silty clay loam. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 36 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is medium acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, moderate shrink-swell potential, depth to bedrock, and moderately permeable clayey subsoil are the main limitations for nonfarm uses. The shrink-swell potential limits use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The clayey, moderately permeable subsoil and the depth to bedrock limit use of the soil for most sanitary facilities. Low strength and excess fines limit use of the soil as a source of roadfill. Slope is a limitation for playgrounds. The soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIe.

84C—Totier silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on side slopes. Slopes are smooth and 100 to 600 feet long. Areas of this soil commonly are irregularly elongated. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is reddish brown silt loam about 8 inches thick. The subsoil is about 32 inches thick. It is yellowish red silty clay loam and red silty clay. The substratum to a depth of 49 inches is red, shaly silty clay. Below this is soft, red shale.

Included with this soil in mapping are small areas of moderately well drained to well drained Manassas soils and well drained Penn and Rapidan soils. The Manassas soils are on foot slopes and along small drainageways. The Penn and Rapidan soils are throughout the mapped area. Also included are small areas of severely eroded soils that have a surface layer of yellowish red silty clay loam. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 36 inches or more. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is medium acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. Some areas are in pasture and hayland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, slope, moderate shrink-swell potential, depth to bedrock, and the moderately permeable clayey subsoil are the main limitations for nonfarm uses. The shrink-swell potential and the slope limit use of this soil as a building site, and the clayey subsoil and slope limit excavations. When wet, the clayey subsoil limits vehicular traffic. The clayey, moderately permeable subsoil, the slope, and the depth to bedrock limit use of the soil for most sanitary facilities. Low strength and excess fines limit use of the soil as a source of roadfill. Slope is a limitation for playgrounds. The soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IIIe.

85C3—Totler silty clay loam, 7 to 15 percent slopes, severely eroded. This deep, strongly sloping, well drained soil is on convex side slopes. Slopes are smooth and 100 to 600 feet long. Areas of this soil commonly are long and irregular. They range from 5 to about 50 acres.

Typically, the surface layer of this soil is yellowish red silty clay loam about 5 inches thick. The subsoil is mostly red silty clay loam and silty clay to a depth of 33 inches. The substratum to a depth of 45 inches is mostly red, shaly silty clay. Below this is soft, red shale.

Included with this soil in mapping are small areas of moderately well drained to well drained Manassas soils and well drained Penn and Rapidan soils. The Manassas soils are in depressions and along small drainageways. The Penn and Rapidan soils are throughout the mapped area. Also included are small areas of soils that are not severely eroded and have a surface layer of reddish brown silt loam. Included soils make up about 20 percent of mapped areas.

Permeability and the available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has fair tilth. The surface layer is friable and easily tilled but breaks up into clods if tilled when too wet or too dry. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content is low, and natural fertility is medium. This soil commonly is medium acid to very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 50 inches.

Many areas of this soil are farmed. A few areas are in woodland.

This soil is poorly suited to cultivated crops. The severe hazard of erosion and the damage of past erosion are major management concerns. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, slope, moderate shrink-swell potential, depth to bedrock, and moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The slope and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil and slope limit excavations. When wet, the clayey subsoil limits vehicular traffic. The clayey, moderately permeable subsoil, the depth to rock, and slope limit most sanitary facilities. Low strength and excess fines limit use of the soil as a source of roadfill. Slope is a limitation for recreational development. The soil is good for use as openland and woodland wildlife habitats.

This soil is in capability subclass IVe.

86B—Turbeville loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on convex ridgetops. Areas of this soil commonly are irregularly rounded or elongated. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark brown loam about 12 inches thick. The subsoil is mostly yellowish red and dark red clay and clay loam to a depth of 70 inches or more.

Included with this soil in mapping are small areas of well drained Hiawassee and Masada soils. These soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer and of severely eroded soils that have a surface layer of reddish brown clay loam. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is medium. The hazard of erosion is moderate. The surface layer is friable and easily tilled. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 60 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Many areas of this soil are farmed. Some areas are in woodland.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, deferred grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, the moderate shrink-swell potential, and the moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. When wet, the clayey subsoil limits vehicular traffic. The moderately permeable subsoil limits use of the soil for septic tank absorption fields. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

86C—Turbeville loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex side slopes. Areas of this soil commonly are long and irregular in shape. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark brown loam about 12 inches thick. The subsoil is mostly yellowish red and dark red clay loam and clay to a depth of 70 inches or more.

Included with this soil in mapping are small areas of well drained Hiawassee and Masada soils. These soils are throughout the mapped area. Also included are small areas of soils that have a gravelly surface layer and of severely eroded soils that have a surface layer of reddish brown clay loam. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Surface runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The surface layer is friable and is easily tilled when moist. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 60 inches or more. The organic matter content is low, and the natural fertility is medium. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. Depth to bedrock is more than 5 feet.

Many areas of this soil are farmed. Some areas are in woodland.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high. Seeds and seedlings survive and grow well if competing vegetation is controlled. Loblolly pine, Virginia pine, yellow-poplar, and oaks do well on this soil.

The low strength, slope, the moderate shrink-swell potential, and the moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength, slope, and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil and slope limit excavations. When wet, the clayey subsoil limits vehicular traffic. The slowly permeable subsoil and slope limit use of the soil for septic tank absorption fields. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIIe.

87B—Tusquitee stony loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is in hollows and on benches and foot slopes. Stones, 10 to 60 feet apart, cover 0.1 to 3 percent of the surface. Slopes are smooth and about 100 to 400 feet long. Areas of this soil are along the drainageways and are elongated and irregular in shape. They range from 5 to about 20 acres.

Typically, the surface layer is very dark brown and dark brown loam about 9 inches thick. The subsoil is about 36 inches thick. It is mostly brown and strong brown gravelly or very cobbly clay loam. The substratum to a depth of 63 inches is strong brown and dark yellowish brown very gravelly or very cobbly sandy loam.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of somewhat poorly drained Belvoir soils, well drained Craigsville and Thurmont soils and well drained to moderately well drained Meadowville soils. The Belvoir soils are at the heads of drainageways and in depressions. The Craigsville soils are along streams on flood plains. The Meadowville soils are throughout the mapped area. The Thurmont soils generally are on slightly higher benches. Also included are small areas of soils that do not have stones on the surface, small areas of soils that have a very stony surface layer, and small areas of outcrops of rock. The included soils and outcrops make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The organic matter content is high, and the natural fertility is medium. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 40 inches. The surface layer and subsoil are strongly acid or medium acid, unless limed. Generally, depth to bedrock is more than 5 feet.

Most areas of this soil are in woodland. A few areas are in pasture or orchards.

This soil is poorly suited to cultivated crops. In cultivated cropland, conservation tillage, stubble mulching, use of cover crops, use of grasses and legumes in the cropping system, and contour stripcropping help reduce runoff and control erosion.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major concerns in management. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses by erosion are excessive.

Potential productivity for trees on this soil is high. The soil is managed for mixed hardwoods and pines. Thinning stands for rapid growth, clear cutting, replanting with fast-growing species, and removal of insect- or disease-infected trees help increase timber production.

The moderately permeable subsoil is the main limitation for nonfarm use. It is a limitation for sanitary landfills and sewage lagoons. This soil is good for use as building sites and as a source of roadfill.

This soil is in capability subclass IVs.

87C—Tusquitee stony loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is in hollows and on benches and foot slopes. Stones, 10 to 60 feet apart, cover 0.1 to 3 percent of the surface. Slopes are smooth and about 100 to 500 feet long. Areas of this soil are along the drainageways and are elongated and irregular in shape. They range from 5 to 20 acres.

Typically, the surface layer is very dark brown and dark brown loam about 9 inches thick. The subsoil is about 36 inches thick. It is mostly strong brown gravelly or very cobbly clay loam. The substratum to a depth of 63 inches is strong brown and dark yellowish brown very gravelly or very cobbly sandy loam.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of somewhat poorly drained Belvoir soils, well drained Chester and Thurmont soils, and well drained to moderately well drained Meadowville soils. The Belvoir soils are at the heads of drainageways and in depressions. The Chester soils are on the side slopes of surrounding ridges. The Meadowville soils are throughout the mapped area. The Thurmont soils generally are on slightly higher benches. Also included are small areas of soils that do not have stones on the surface, small areas of soils that have a very stony surface layer, and small areas of outcrops of rock. The included soils and outcrops make up about 15 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. This soil has good tilth. The organic matter content is high, and the natural fertility is medium. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 40 inches. The surface layer and subsoil are strongly acid or medium acid, unless limed. Depth to bedrock is generally more than 5 feet.

Most areas of this soil are in woodland. A few areas are in pasture or orchards.

This soil is poorly suited to cultivated crops. The severe hazard of erosion and stones on the surface are major concerns in management. Conservation tillage, stubble mulching, use of cover crops, use of grasses and legumes in the cropping system, and contour stripcropping help to reduce runoff and control erosion.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major concerns of management. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses by erosion are excessive.

Potential productivity for trees on this soil is high. The soil is managed for mixed hardwoods and pines. Thinning stands for rapid growth, clear cutting, replanting with fast-growing species, and removal of insect- or disease-infected trees help to increase timber production.

The moderately permeable subsoil and slope are the main limitations for nonfarm uses. These are limitations for sanitary facilities, building sites, and recreational areas. The soil is good as a source of roadfill.

This soil is in capability subclass IVs.

87D—Tusquitee stony loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is in hollows and on benches and foot slopes. Stones, 10 to 60 feet apart, cover 0.1 to 3 percent of the surface. Slopes are smooth and about 100 to 500 feet long. Areas of this soil are elongated and irregular in shape. They range from 5 to about 20 acres.

Typically, the surface layer is very dark brown and dark brown loam about 9 inches thick. The subsoil is about 36 inches thick. It is mostly brown and strong brown gravelly or very cobbly clay loam. The substratum to a depth of 63 inches is strong brown and dark yellowish brown very gravelly or very cobbly sandy loam.

Included with this soil in mapping are small intermingled areas, generally less than 2 acres, of somewhat excessively drained Ashe soils, well drained Chester and Thurmont soils, and excessively drained Parker soils. The Ashe, Chester, and Parker soils generally are on the side slopes of surrounding ridges. The Thurmont soils are on slightly higher benches. Also included are small areas of soils that do not have stones on the surface, small areas of soils that have a very stony surface layer, and small areas of outcrops of rock. The included soils and outcrops make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. The natural fertility is medium, and the organic matter content is high. The subsoil has low shrink-swell potential. The root zone extends to a depth of more than 40 inches. The surface layer and subsoil are strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland. A few areas are in pasture or orchards.

This soil is not suited to cultivated crops. The stones on the surface and steep slope make the use of tillage equipment impractical.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff and soil losses by erosion are excessive.

Potential productivity for trees on this soil is high. The soil is managed for mixed hardwoods and pines. Thinning stands for rapid growth, clear cutting, replanting with fast-growing species, and removal of insect- or disease-infected trees help to increase timber production. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion.

Slope and moderately permeable subsoil are the main limitations for nonfarm uses. They limit sanitary facilities, building sites, and recreational areas. This soil is limited for use as a source of roadfill because of the depth to rock, excess fines, and the slope.

This soil is in capability subclass VIs.

88—Udorthents, loamy. This map unit is made up of areas that have been used for cutting or filling during grading for roads, housing developments, recreational areas, quarries, and other similar uses. The areas commonly are irregular in shape and conform to property boundaries. They range from 3 to about 50 acres. Slopes mainly range from 2 to about 25 percent. Sidewalls are nearly vertical in places.

The cuts are generally the steepest part of this map unit. The material exposed in these cuts is generally loamy and is very strongly acid. It generally consists of underlying material of the Ashe, Catoctin, Chester, Cullen, Elioak, Hayesville, Manteo, Myersville, Nason, or Rabun soils. The filled areas generally consist of material removed from the cuts.

Included with these soils in mapping are areas of soils that have not been appreciably altered by cutting and filling and areas where bedrock is exposed. These areas make up less than 15 percent of mapped areas.

Permeability ranges from moderately rapid to slow. The available water capacity is low to moderate. Surface runoff is medium to very rapid, and the hazard of erosion is moderate to very severe. The organic matter content and the natural fertility are low. These soils are medium acid to very strongly acid throughout. Water stands in some areas during winter and spring, or throughout the year.

Areas of these soils commonly are covered by a thin stand of brush, grasses, and annual weeds. Some smoothed areas are farmed.

Onsite investigations are needed to determine the use and management of these soils.

These soils are not assigned to a capability subclass.

89B—Unison silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on broad colluvial fans and mountain foot slopes. Slopes are smooth, simple, and about 300 to 600 feet long. Areas of this soil commonly are elongated or irregularly rectangular. They are 5 to about 20 acres.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The subsoil is about 52 inches thick. It is reddish brown and yellowish red silty clay loam and clay. The substratum to a depth of 60 inches or more is strong brown cobbly clay loam.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of well drained Braddock, Dyke, Lew, and Thurmont soils. The Braddock, Dyke, and Thurmont soils are throughout the mapped area. The Lew soils generally are closer to the base of the mountains than Unison soils. Also included are small areas of soils that have a very stony surface layer and of severely eroded soils that have a silty clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is medium. The hazard of erosion is moderate. This soil has good tilth and can be easily tilled in the proper range of soil moisture. The natural fertility is medium, and the organic matter content is low to moderate. The subsoil is plastic and has moderate shrink-swell potential. The root zone extends to a depth of about 40 inches or more. The surface layer and subsoil commonly are strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. A few areas are in pasture.

This soil is well suited to cultivated crops. The hazard of erosion is moderate but is a major management concern. Other management concerns are increasing the organic matter content and applying lime and fertilizer according to soil tests to offset acidity and improve fertility. In cultivated cropland, conservation tillage and legumes in the cropping system help reduce runoff and control erosion. Crop residue should be kept on or near the surface.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and the use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses by erosion are excessive.

Potential productivity for trees on this soil is very high. The soil is managed for hardwoods and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Low strength, moderate permeability, moderate shrink-swell potential, and clayey subsoil are the main limitations for nonfarm uses. Low strength limits the use of this soil as a source of roadfill and for local roads and streets. The moderately permeable, clayey subsoil limits some sanitary facilities. The clayey subsoil and moderate shrink-swell potential limit building site development. Slope is a limitation for playgrounds.

This soil is in capability subclass IIe.

89C—Unison silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex side slopes of colluvial fans and mountain foot slopes. Slopes are smooth, simple, and about 300 to 600 feet long. Areas of this soil commonly are elongated or irregularly rectangular. They are 5 to about 20 acres.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The subsoil is about 52 inches thick. It is yellowish red silty clay loam and reddish brown clay. The substratum to a depth of 60 inches or more is strong brown cobbly clay loam.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of well drained Braddock, Dyke, Lew, and Thurmont soils. The Braddock, Dyke, and Thurmont soils are throughout the mapped area. The Lew soils generally are closer to the base of the mountains than Unison soils. Also included are small areas of soils that have a very stony surface layer and small areas of severely eroded soils that have a silty clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. This soil has good tilth and can be easily tilled in the proper range of soil moisture. The natural fertility is medium, and the organic matter content is low to moderate. The subsoil is plastic and has moderate shrink-swell potential. The root zone extends to a depth of about 40 inches or more. The surface layer and subsoil commonly are strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are farmed. A few areas are in pasture.

This soil is moderately well suited to cultivated crops. The hazard of erosion is severe and is a major management concern. Other management concerns are increasing the organic matter content and applying lime and fertilizer according to soil tests to offset the acidity and improve the fertility. If the soil is cultivated, conservation tillage, use of cover crops, and including grasses and legumes in the cropping system help reduce runoff and control erosion. Crop residue should be kept on or near the surface.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and the use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses by erosion are excessive.

Potential productivity for trees on this soil is very high. The soil is managed for hardwoods and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Low strength, moderate permeability, slope, moderate shrink-swell potential, and clayey subsoil are the main limitations for nonfarm uses. Low strength limits the use of this soil as a source of roadfill and for local roads and streets. The moderately permeable, clayey subsoil and slope limit the use of this soil for sanitary facilities. The clayey subsoil, slope, and moderate shrink-swell potential are limitations for building site development. Slope is a limitation for recreational development.

This soil is in capability subclass IIIe.

90B—Unison very stony silt loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on broad colluvial fans and mountain foot slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth, simple, and about 300 to 600 feet long. Areas of this soil commonly are elongated or irregularly rectangular. They are 5 to about 100 acres.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The subsoil is about 52 inches thick. It is yellowish red silty clay loam and reddish brown clay. The substratum to a depth of 60 inches is strong brown cobbly clay loam.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of well drained Braddock, Dyke, Lew, and Thurmont soils. The Braddock, Dyke, and Thurmont soils are throughout the mapped area. The Lew soils generally are closer to the base of the mountains than Unison soils. Also included are small areas of soils that do not have stones on the surface and small areas of severely eroded soils that have a silty clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is medium. The hazard of erosion is moderate. The natural fertility is medium, and the organic matter content is low to moderate. The subsoil is plastic and has moderate shrink-swell potential. The root zone extends to a depth of about 40 inches or more. The surface layer and subsoil commonly are strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in pasture. A few areas are in woodland.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and applying lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses by erosion are excessive.

Potential productivity for trees on this soil is very high. The soil is managed for hardwoods and pines. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Low strength, stoniness, moderate shrink-swell potential, and clayey, moderately permeable subsoil are the main limitations for nonfarm uses. Low strength limits the use of this soil as a source of roadfill and for local roads and streets. The clayey, moderately permeable subsoil limits some sanitary facilities. The moderate shrink-swell potential and the clayey subsoil limit use of this soil for building site development. Stoniness is a limitation for most recreational development.

This soil is in capability subclass VIs.

90C—Unison very stony silt loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on convex side slopes of colluvial fans and mountain foot slopes. Stones, 3 to 10 feet apart, cover about 3 to 15 percent of the surface. Slopes are smooth and about 300 to 600 feet long. Areas of this soil commonly are long and winding. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark brown silt loam about 6 inches thick. The subsoil is about 52 inches thick. It is yellowish red silty clay loam and reddish brown clay. The substratum to a depth of 60 inches or more is strong brown cobbly clay loam.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of well drained Braddock, Dyke, Lew, and Thurmont soils. The Braddock, Dyke, and Thurmont soils are throughout the mapped area. The Lew soils generally are closer to the base of the mountains than Unison soils. Also included are small areas of soils that do not have stones on the surface layer. Included soils make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of about 40 inches or more. The organic matter content is low to moderate, and the natural fertility is medium. This soil commonly is strongly acid or medium acid throughout, but reaction in the surface layer is variable because of local liming. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland. Some areas are in pasture.

This soil is not suited to hay and cultivated crops. The stones on the surface make the use of modern equipment impractical.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is very high. The soil is managed for pines and hardwoods. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, stoniness, moderate shrink-swell potential, and moderately permeable clayey subsoil are the main limitations for nonfarm uses. Slope, moderate shrink-swell potential, and low strength limit use of this soil as a building site. The clayey, moderately permeable subsoil and slope limit the soil as a site for sanitary facilities. Slope and stoniness limit recreational areas. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass VIs.

90D—Unison very stony silt loam, 15 to 25 percent slopes. This deep, moderately steep, well drained soil is on convex side slopes of colluvial fans and mountain foot slopes. Stones, 3 to 10 feet apart, cover 3 to 15 percent of the surface. Slopes are smooth, simple, and about 200 to 400 feet long. Areas of this soil are long and winding. They range from 3 to about 20 acres.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The subsoil is about 52 inches thick. It is yellowish red silty clay loam and reddish brown clay. The substratum to a depth of 60 inches or more is strong brown cobbly clay loam.

Included with this soil in mapping are small intermingled areas, generally less than 3 acres, of well drained Braddock, Dyke, Lew, and Thurmont soils. The Braddock, Dyke, and Thurmont soils are throughout the mapped area. The Lew soils generally are closer to the base of the mountains than Unison soils. Also included are small areas of soils that do not have stones on the surface and small areas of severely eroded soils that have a silty clay loam surface layer. Included soils make up about 25 percent of mapped areas.

Permeability and available water capacity are moderate. Runoff is rapid. The hazard of erosion is severe. Natural fertility is medium, and organic matter content is low to moderate. The subsoil is plastic and has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The surface layer and subsoil commonly are strongly acid or medium acid, unless limed. Bedrock is generally at a depth of more than 5 feet.

Most areas of this soil are in woodland. A few areas are in pasture.

This soil is not suited to hay and cultivated crops. The use of tillage equipment is impractical because of the stones on the surface.

This soil is moderately well suited to pasture crops. Establishing and maintaining a mixture of grasses and legumes and overgrazing are major pasture management concerns. Proper stocking rates to maintain desirable grasses and legumes, controlled grazing, and use of lime and fertilizer according to soil tests are useful in pasture management. If the pasture is overgrazed, runoff is increased and soil losses by erosion are excessive.

Potential productivity for trees on this soil is very high. The soil is managed for hardwoods and pines. Seeds and seedlings survive and grow well on this soil. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits the safe operation of heavy equipment.

Slope, clayey, moderately permeable subsoil, stoniness, and low strength are limitations for most nonfarm uses. Slope and the clayey, moderately permeable subsoil limit this soil for most sanitary facilities. Low strength limits the use of this soil as a source of roadfill and local streets and roads. Slope is a limitation for building site development. Slope and stoniness are limitations for recreational development.

This soil is in capability subclass VIs.

91—Urban land. This map unit consists of areas where more than 80 percent of the surface is covered by asphalt, concrete, buildings, or other impervious surfaces. These areas are parking lots, shopping centers, business centers, industrial parks, school complexes, and airports. These areas are throughout Albemarle County but dominantly are around the city of Charlottesville. They are on the Piedmont and generally range from 2 to more than 10 acres. Slopes range from 0 to 10 percent.

This map unit is not assigned to a capability subclass.

92—Wahee silt loam. This soil is deep, nearly level, and somewhat poorly drained. It is on narrow to broad, low stream terraces. Areas of this soil commonly are irregularly elongated. They range from about 3 to 50 acres. Slopes range from 0 to 4 percent.

Typically, the surface layer of this soil is dark grayish brown and grayish brown silt loam about 9 inches thick. The subsoil is mottled and extends to a depth of 60 inches. It is mostly light yellowish brown clay loam in the upper part and mottled gray clay and clay loam in the lower part.

Included with this soil in mapping are small areas of moderately well drained Dogue soils, well drained McQueen soils, and poorly drained Wehadkee soils. The Dogue and McQueen soils are on the slightly higher convex positions throughout the mapped area, and the Wehadkee soils are around small drainageways and in depressions. Also included are areas of soils that are similar to this Wahee soil, have a thinner subsoil and are generally along slope breaks. Included soils make up about 20 percent of mapped areas.

Permeability is slow, and available water capacity is moderate. Surface runoff is slow. The hazard of erosion is slight. This soil has good tilth. The surface layer is friable and easily tilled. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content and the natural fertility are low to high. This soil commonly is very strongly acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is at a depth of 1/2 foot to 1 1/2 feet during winter and early in spring. Areas are subject to occasional flooding. Depth to bedrock is more than 5 feet.

Most areas of this soil are in permanent pasture. Some areas are in woodland, and some areas are farmed.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The soil is wet and cold in spring, and wetness commonly interferes with tillage. Drainage helps to alleviate wetness and protects crops from damage. Conservation tillage, using cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, using proper stocking rates, controlled grazing, drainage, and use of lime and fertilizer according to soil tests help to increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer and reduces plant growth and infiltration.

The potential productivity for trees on this soil is high, especially for loblolly pine, sweetgum, yellow-poplar, and oaks. Seeds and seedlings survive and grow well only if competing vegetation is controlled. The soil is soft when wet and limits the use of heavy equipment.

The seasonal high water table, occasional flooding, and slowly permeable clayey subsoil are the main limitations for nonfarm uses, especially for building sites, sanitary landfills, and septic tank absorption fields. The high water table is a limitation for recreational development. Low strength and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IIIw.

93C—Watt channery silt loam, 7 to 15 percent slopes. This moderately deep, strongly sloping, somewhat excessively drained soil is on convex ridgetops and the upper part of side slopes. Slopes are smooth and about 200 to 600 feet long. Areas of this soil commonly are long and narrow. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is very dark gray and dark olive gray channery silt loam about 10 inches thick. The subsoil is olive gray very channery silt loam about 8 inches thick. The substratum to a depth of about 28 inches is multicolored olive gray, black, and light olive brown very channery silt loam. Graphitic schist is at a depth of about 28 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Glenelg soils and excessively drained Hazel soils. These soils are throughout the mapped areas. Included soils make up about 20 percent of mapped areas.

Permeability is moderately rapid, and the available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 20 inches. The organic matter content and the natural fertility are low. This soil is very strongly acid throughout. Depth to bedrock ranges from 20 to 40 inches.

Most areas of this soil are in woodland.

This soil is poorly suited to cultivated crops. It is droughty during the growing season. The severe hazard of erosion is a major management concern. Conservation tillage, using cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, weed control, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture and help to control erosion. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. Virginia pine and oaks do fair on this soil. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. Limited depth to bedrock causes windthrow in many places.

The slope and the shallow depth to bedrock are the main limitations for nonfarm uses. Depth to bedrock limits use of the soil as a building site and for sanitary facilities. Slope limits use of the soil for recreational areas. The soil is a poor source of roadfill.

This soil is in capability subclass IVe.

93D—Watt channery silt loam, 15 to 25 percent slopes. This moderately deep, moderately steep, somewhat excessively drained soil is on narrow, convex ridgetops and convex side slopes. Slopes are smooth and about 200 to 600 feet long. Areas of this soil commonly are long and narrow. They are about 5 to 20 acres.

Typically, the surface layer of this soil is very dark gray and dark olive gray channery silt loam about 10 inches thick. The subsoil is olive gray very channery silt loam about 8 inches thick. The substratum to a depth of about 28 inches is multicolored olive gray, black, and light olive brown very channery silt loam. Graphitic schist is at a depth of about 28 inches.

Included with this soil in mapping are small areas of well drained Albemarle and Glenelg soils and excessively drained Hazel soils. The Albemarle and Glenelg soils are on the ridgetops. The Hazel soils are throughout the mapped area. Included soils make up about 20 percent of mapped areas.

Permeability is moderately rapid, and available water capacity is very low. Surface runoff is rapid. The hazard of erosion is severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 20 inches. The organic matter content and the natural fertility are low. This soil is very strongly acid throughout. Depth to bedrock ranges from 20 to 40 inches.

Most areas of this soil are in woodland.

This soil is not suited to cultivated crops. It is droughty during the growing season.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, the use of proper stocking rates, controlled grazing, weed control, and the use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture and help to control erosion. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. This soil is fairly suited to Virginia pine and oaks. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment. Limited depth to bedrock causes windthrow in many places.

The slope and shallow depth to bedrock are the main limitations for nonfarm uses. Slope and depth to bedrock limit use of this soil as a building site and for most sanitary facilities. Slope limits use of the soil for recreational areas. The soil is a poor source of roadfill.

This soil is in capability subclass VIe.

93E—Watt channery silt loam, 25 to 45 percent slopes. This moderately deep, steep, somewhat excessively drained soil is on side slopes in the

Piedmont. Areas of this soil are commonly long and narrow. They are 3 to about 20 acres.

Typically, the surface layer of this soil is very dark gray and dark olive gray channery silt loam about 7 inches thick. The subsoil is olive gray channery silt loam about 11 inches thick. The substratum to a depth of about 28 inches is multicolored olive, gray, black, and light olive brown channery silt loam. Graphitic schist is at a depth of about 32 inches.

Included with this soil in mapping are small areas of excessively drained Hazel soils. These soils are throughout the mapped area. Also included are small areas of soils that have a flaggy or stony surface layer. Included soils make up about 20 percent of mapped areas.

Permeability is moderate to moderately rapid, and available water capacity is very low. Surface runoff is very rapid. The hazard of erosion is very severe. The subsoil has low shrink-swell potential. The root zone extends to a depth of about 20 inches. The organic matter content and the natural fertility are low. This soil is extremely acid or very strongly acid throughout. Depth to bedrock ranges from 20 to 40 inches.

Most areas of this soil are in woodland.

This soil is not suited to hay and cultivated crops. The steep slope makes use of modern equipment impractical.

This soil is poorly suited to pasture. It is droughty during the growing season. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, rotation of pasture, and deferred grazing help to increase the carrying capacity of pasture and help to control erosion. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderate. This soil is fairly suited to Virginia pine and oaks. The survival of seeds and seedlings is affected by drought during the growing season. Logging roads and skid trails should be constructed on the contour to reduce the concentration of runoff and help control erosion. The slope limits safe operation of heavy equipment. Limited depth to bedrock causes windthrow in many places.

The slope and shallow depth to bedrock are the main limitations for nonfarm uses. Slope and depth to bedrock limit use of this soil for building sites, septic tank absorption fields, and sanitary landfills. Slope is a limitation for recreational areas. This soil is a poor source of roadfill.

This soil is in capability subclass VIIe.

94B—Wedowee sandy loam, 2 to 7 percent slopes. This deep, gently sloping, well drained soil is on narrow to broad, convex ridgetops. Areas of this soil commonly are irregularly rounded or oblong. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark yellowish brown sandy loam about 7 inches thick. The subsoil is mostly yellowish brown and yellowish red clay, sandy clay loam, and clay loam about 23 inches thick. The substratum, to a depth of 42 inches, is strong brown, yellowish brown, and white sandy clay loam. From 42 to more than 60 inches is strongly weathered granite rock that crushes easily to sandy clay loam.

Included with this soil in mapping are small areas of well drained to excessively drained Louisburg soils and well drained Pacolet soils. The Louisburg soils are mainly on the more sloping positions and points of ridges. The Pacolet soils are throughout the mapped area. Also included are small areas of gravelly soils, and small areas of severely eroded soils that have a strong brown sandy clay loam or clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is low. Surface runoff is medium. The hazard of erosion is moderate. This soil has good tilth. The surface layer is friable and easily tilled when moist. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid throughout, but reaction in the surface layer is variable because of local liming. The depth to bedrock is more than 60 inches.

Most areas of this soil are farmed. Some areas are in woodland or pasture, and a few areas are in urban development.

This soil is well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain the organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Low strength, moderate shrink-swell potential, and moderately permeable, clayey subsoil are the main limitations for nonfarm uses. The low strength and the shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. The moderately permeable subsoil is a limitation for septic tank absorption fields. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIe.

94C—Wedowee sandy loam, 7 to 15 percent slopes. This deep, strongly sloping, well drained soil is on narrow convex ridgetops and side slopes. Areas of this soil commonly are irregularly oblong. They range from 3 to about 20 acres.

Typically, the surface layer of this soil is dark yellowish brown sandy loam about 7 inches thick. The subsoil is mostly yellowish brown and yellowish red clay, sandy clay loam, and clay loam about 23 inches thick. The substratum, to a depth of 42 inches, is strong brown, yellowish brown, and white sandy clay loam. From 42 to more than 60 inches is strongly weathered granite rock that crushes easily to sandy clay loam.

Included with this soil in mapping are small areas of somewhat excessively drained Louisburg soils and well drained Pacolet soils. The Louisburg soils are mainly on the more sloping positions and points of ridges. The Pacolet soils are throughout the mapped area. Also included are small areas of gravelly soils and small areas of severely eroded soils that have a strong brown sandy clay loam or clay loam surface layer. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is low. Surface runoff is rapid. The hazard of erosion is severe. The surface layer is friable and easily tilled when moist but breaks up into clods if tilled when the soil is too wet or too dry. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 30 inches or more. The organic matter content and the natural fertility are low. This soil commonly is strongly acid or very strongly acid, but reaction in the surface layer is variable because of local liming. The depth to bedrock is more than 60 inches.

Most areas of this soil are in permanent pasture. Some areas are in woodland, and a few areas are in urban development.

This soil is moderately well suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. Conservation tillage, use of cover crops, including grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain the organic matter content and tilth and help to control erosion, reduce crusting, and increase water infiltration.

This soil is well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, use of proper stocking rates, controlled grazing, and use of lime and fertilizer according to soil tests help increase the carrying capacity of pasture. Overgrazing causes compaction of the surface soil and increases runoff and erosion.

Potential productivity for trees on this soil is moderately high, especially for loblolly pine, Virginia pine, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled.

Slope, low strength, moderate shrink-swell potential, and moderately permeable clayey subsoil are the main limitations for nonfarm uses. Slope, low strength, and shrink-swell potential limit use of this soil as a building site, and the clayey subsoil limits excavations. Slope and the moderately permeable subsoil limit septic tank absorption fields and recreational areas. Low strength and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IIIe.

95—Wehadkee silt loam. This soil is deep, nearly level, and poorly drained. It is on narrow to broad flood plains. Slopes range from 0 to 2 percent. Areas of this soil commonly are long and narrow. They range from about 5 to 20 acres.

Typically, the surface layer of this soil is grayish brown silt loam about 10 inches thick. The subsoil is mottled and extends to a depth of 52 inches. It is mostly dark gray or gray silty clay loam or silt loam. The substratum to a depth of 62 inches is gray sandy loam and has dark yellowish brown mottles.

Included with this soil in mapping are small areas of somewhat poorly drained Chewacla soils and well drained Riverview soils. The Chewacla and Riverview soils are on slightly higher convex positions throughout the landscape. Also included are small areas of soils that have a clayey subsoil and of soils that have slopes of more than 2 percent. These soils are generally farthest away from the stream near the base of upland ridges. Included soils make up about 20 percent of mapped areas.

Permeability is moderate, and available water capacity is high. Surface runoff is slow. The hazard of erosion is slight. The surface layer is friable, and tilth is good. The subsoil has low shrink-swell potential. The root zone extends to a depth of less than 36 inches. The organic matter content is moderate, and the natural fertility is medium. This soil commonly is strongly acid to slightly acid throughout, but reaction in the surface layer is variable because of local liming. The depth to bedrock is more than 5 feet. A seasonal high water table is within a depth of 2 1/2 feet during winter and early in spring. Areas of this soil are subject to occasional flooding.

Most areas of this soil are in woodland, but some areas are in pasture.

This soil is poorly suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The soil is wet and cold in spring, and wetness commonly interferes with tillage. Drainage helps to alleviate wetness and protects crops from damage. Conservation tillage, using cover crops and grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, using proper stocking rates, controlled grazing, drainage, and lime and fertilizer applied according to soil tests help to increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and reduces infiltration.

The potential productivity for trees on this soil is very high, especially for loblolly pine, sweetgum, yellow-poplar, sycamore, and willow oak. Seeds and seedlings survive and grow well if competing vegetation is controlled. The soil is soft when wet. This limits the use of heavy equipment.

The seasonal high water table and occasional flooding are the main limitations of this soil for nonfarm uses. They especially limit use of this soil for building sites, for most sanitary facilities, and for recreational development. Wetness and excess fines limit use of the soil as a source of roadfill.

This soil is in capability subclass IVw.

96B—Worsham loam, 2 to 7 percent slopes. This soil is deep, gently sloping, and poorly drained. It is in depressions, at the heads of drains, and along intermittent streams. Areas of this soil commonly are irregularly elongated. They range from about 3 to 15 acres.

Typically, the surface layer of this soil is dark grayish brown and grayish brown loam about 9 inches thick. The subsoil is about 45 inches thick. It is mostly light gray clay and is mottled. The substratum to a depth of 60 inches or more is light gray sandy clay loam.

Included with this soil in mapping are small areas of moderately well drained Abell soils, somewhat poorly drained Belvoir soils, moderately well drained to somewhat poorly drained Lignum soils, and moderately well drained to well drained Meadowville soils. The Abell and Meadowville soils are on slightly higher convex positions near the base of upland ridges. The Belvoir and Lignum soils are on slightly higher convex positions throughout the landscape. Also included are small areas of soils that have slopes of more than 7 percent. Included soils make up about 25 percent of mapped areas.

Permeability is slow to very slow, and available water capacity is moderate. Surface runoff is medium. The hazard of erosion is moderate. The surface layer is friable, but tilth is poor. The subsoil has moderate shrink-swell potential. The root zone extends to a depth of 40 inches or more. The organic matter content is low to moderate, and the natural fertility is low. This soil commonly is very strongly acid or strongly acid throughout, but reaction in the surface layer is variable because of local liming. A seasonal high water table is within a depth of 1 foot during winter and spring.

Most areas of this soil are in permanent pasture, but some areas are in woodland.

This soil is poorly suited to cultivated crops. When lime and fertilizer are applied according to soil tests, crops respond well. The soil is wet and cold in spring, and wetness commonly interferes with tillage. Drainage helps to alleviate wetness and protects crops from damage. Conservation tillage, cover crops, grasses and legumes in the cropping system, and returning crop residue to the soil help to maintain organic matter content and tilth, reduce crusting, and increase water infiltration.

This soil is moderately well suited to pasture and hay crops. Establishing and maintaining a mixture of grasses and legumes, using proper stocking rates, controlled grazing, drainage, and lime and fertilizer applied according to soil tests help to increase the carrying capacity of pasture. Overgrazing or grazing when the soil is too wet causes compaction of the surface layer, reduces plant growth, and reduces infiltration.

The potential productivity for trees on this soil is high, especially for loblolly pine, sweetgum, yellow-poplar, and oaks. Seeds and seedlings survive and grow well if competing vegetation is controlled. The soil is soft when wet. This limits the use of heavy equipment.

The seasonal high water table and the clayey, slowly permeable subsoil are the main limitations of this soil for nonfarm uses. They especially limit use of this soil for building sites, for most sanitary facilities, and for recreational development. Wetness, low strength, and excess fines limit use of this soil as a source of roadfill.

This soil is in capability subclass IVw.

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Prime Farmland

Prime farmland is one of several kinds of important farmlands defined by the U.S. Department of Agriculture. It is of major importance in providing the Nation's short- and long-range needs for food and fiber. The supply of high quality farmland is limited, and the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, must encourage and facilitate the use of our Nation's prime farmland with wisdom and foresight.

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce a sustained high yield of crops when it is treated and managed using acceptable farming methods. Prime farmland produces the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment.

Prime farmland in Albermarle County may now be in crops, pasture, woodland, or other land, but not urban and built-up land or water areas. It must either be used for producing food or fiber or be available for these uses.

Prime farmland usually has an adequate and dependable supply of moisture from precipitation or irrigation. It also has favorable temperature and growing season and acceptable levels of acidity or alkalinity. It has few or no rocks and is permeable to water and air. Prime farmland is not excessively erodible or saturated with water for long periods and is not flooded during the growing season. The slope ranges mainly from 0 to 6 percent. For more detailed information on the criteria for prime farmland consult the local staff of the Soil Conservation Service.

About 103,530 acres, or nearly 22 percent, of Albermarle County meets the soil requirements for prime farmland.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and difficult to cultivate and usually are less productive.

Soil map units that make up prime farmland in Albermarle County are listed in table 5. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps in the back of this publication. The soil qualities that affect use and management are described in the section "Detailed soil map units."

Soils that have limitations—a high water table or flooding—may qualify for prime farmland if these limitations are overcome by such measures as drainage or flood control. In table 5, these limitations, if any, are shown in parentheses after the map unit name. Onsite evaluation is necessary to see if these limitations have been overcome by corrective measures.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

L. Willis Miller, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

More than 121,900 acres in the survey area were used for crops and pasture in 1977, according to the 1978 Census of Agriculture. Of this total, about 8,800 acres were used for row crops (corn and soybeans); 1,100 acres for close-grown crops (wheat, oats, and barley); 32,500 acres for hay; and 79,500 acres for pasture.

The acreage in cultivated crops in the county has gradually been decreasing; the acreage in pasture has been increasing as more beef cattle are being raised. Considerable acreage of cropland and pasture has been converted to community development.

Soil erosion is the major concern on most of the cropland in Albemarle County. Most soils in the county have slopes of more than 2 percent and thus are susceptible to erosion.

Loss of the surface layer of the soil by erosion reduces the productivity of the soil and reduces the fertility and available water capacity. Erosion is especially damaging to soils that have a clayey subsoil, such as Cullen and Hayesville soils, and to soils that have bedrock near the surface. Erosion also reduces productivity on soils that tend to be droughty, such as Manteo and Klinesville soils.

Soil erosion also results in sediment-loaded streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife habitat.

Preparing a good seedbed through tillage is difficult on severely eroded spots because of the increased clay content and less organic matter in the present surface layer. It is also difficult to establish a good stand of any crop on the eroded spots because of the reduced available moisture and soil-seed contact in the seedbed. Severely eroded spots are common along sharp slope breaks in cultivated areas.

Erosion control practices that provide protective surface cover help to reduce runoff and increase water infiltration. For example, using a cropping system that keeps the plant cover on the soil for extended periods can hold erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion, provide nitrogen, and improve soil tilth for the following crop in the system.

Stripcropping and using grassed waterways are common erosion control practices in the survey area. They are best suited to soils that have smooth, uniform slopes. Terraces and diversions also reduce the length of slope and reduce runoff and erosion. They are most practical on deep, well drained soils that have long, regular slopes, such as Totier, Dyke, Cullen, and Hayesville soils. Contour tillage or terracing is not practical in most areas of Nason, Pacolet, and Tatum soils. Substantial plant cover is required to control erosion on these soils.

Conservation tillage, leaving crop residue on the surface, and using winter cover crops help to increase infiltration and reduce the hazards of runoff and erosion. These practices are suitable for most soils in the survey area but are difficult to use on the more eroded soils.

Soil fertility is low in most soils in the county, and most are very strongly acid or strongly acid unless they have been limed. The proper pH level enables crops to use fertilizer and soil moisture more efficiently. Crops on most soils in the county respond well to applications of lime and fertilizer that are applied according to soil tests.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils that have good tilth are granular and porous. Poor tilth results in cloddy soils, less soil-seed contact, and a poorer stand of plants.

Most soils used for crops in the survey area have a surface layer of sandy loam, fine sandy loam, loam, or silt loam and are low in content of organic matter. Generally, the structure of the surface of such soils is weak, and rainfall causes a crust to form. The crust is hard when dry and reduces infiltration of water and increases runoff. Regular additions of crop residue and other organic material help to improve tilth and reduce crust formation.

Tilth is a particular concern in soils that have a high content of clay in the plow layer, such as Dogue and Orange soils, and in most soils that are severely eroded. These soils commonly stay wet until about midspring. If they are wet when plowed, they tend to be cloddy when dry and a good seedbed is difficult to prepare.

Drainage is a major management need on a small acreage used for crops and pasture in the survey area. Some soils are naturally so wet that the production of crops common to the area is generally not practical or possible unless the soils are drained. These include the somewhat poorly drained Chewacla and Wehadkee soils.

The design of surface and subsurface drainage systems varies with the kind of soil. Sometimes a combination of surface drainage and subsurface drainage can be used. Drains have to be more closely spaced in slowly permeable soils than in the more permeable soils. Subsurface drainage is suited to moderately permeable soils. Some soils that have a fragipan can be drained with subsurface drains, provided the fragipan layer is deep enough to allow adequate cover.

Field crops suited to the soils and climate of the survey area include corn, soybeans, and grain sorghum. Wheat, oats, barley, and rye are the common small grains.

Pasture in the county commonly consists of tall fescue, orchardgrass, or clover. Most improved pasture is seeded to tall fescue and ladino clover mixtures. Pasture of cool-season plants provides most of the grazing in spring and autumn. Warm-season plants, such as common bermudagrass, midland bermudagrass, and lespedezas, could be grown in the eastern part of the county to provide summer grazing.

Establishing and maintaining a mixture of grasses and legumes and the prevention of overgrazing are the major pasture management concerns. The use of proper stocking rates, rotational and deferred grazing, weed control, restriction of grazing during the wet season, and the use of lime and fertilizer are the major pasture management practices. Stockpiling the accumulated growth of tall fescue for winter grazing reduces the need for hay.

The major plants grown and harvested for hay are Kentucky-31 fescue, orchardgrass, and red clover. Alfalfa is suitable for many soils in the survey area if the proper amounts of lime and fertilizer are applied. Timothy and bluegrass can be grown and managed for good quality hay.

Special crops grown in the county on a small scale are vegetables, apples, peaches, strawberries, and nursery plants and grapes. The deep, well drained soils are especially well suited to most of these special crops. Soils in low positions where air drainage causes cold air to settle are generally not suited to early vegetables, orchards, and grapes.

Yields Per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (*4*). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation. The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Approximately 279,500 acres, or about 59 percent of the land area of Albemarle County, is wooded. Most of this is second growth hardwoods, Virginia pine, and loblolly pine.

The original woodland consisted of mixed stands of chestnut oak, white oak, post oak, scarlet oak, black oak, northern red oak, southern red oak, and hickory. Yellow-poplar was on the more moist sites. Shortleaf pine and Virginia pine were scattered throughout these hardwood stands. Poorly drained areas were covered by mixed stands of green ash, sweetgum, blackgum, boxelder, and red maple.

Most of the original woodland was cleared and the soil was cultivated as the lands were settled and consolidated into farms. Gradually, the soils became eroded, fertility was depleted, and the woodland was allowed to return. The present stands of mixed hardwoods, Virginia pine, and loblolly pine are mostly in areas that were farmland.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: x, w, t, d, c, s, f, and r.

In table 7, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *windthrow hazard* are based on soil characteristics that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of *slight* indicates that few trees may be blown down by strong winds; *moderate*, that some trees will be blown down during periods of excessive soil wetness and strong winds; and *severe*, that many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

Recreation

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, bluegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are ragweed, foxtail, goldenrod, and beggarweed.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are honeysuckle, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, hemlock, and redcedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cattail, pickerelweed, arrow-arum, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, mourning dove, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table and permeability of the aquifer. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "channery." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion and the amount of soil lost. Soils in Albemarle County have not been assigned to these groups.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Some soils in table 16 are assigned to two hydrologic soil groups. Dual grouping is used for soils that are less than 20 inches deep to bedrock. The first letter applies to areas where the bedrock is cracked and pervious, and the second letter applies to areas where the bedrock is impervious or where exposed bedrock makes up more than 25 percent of the surface of the soil.

Flooding, the temporary inundation of an area, is caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs, on the average, no more than once in 2 years; and *frequent* that it occurs, on the average, more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 16.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An *artesian* water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured clayey soils that have a high water table in winter are most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*5*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol.* An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Udic*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udults*, the suborder of the Ultisols that have a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, mesic Typic Hapludults.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*3*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*5*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Abell Series

Soils of the Abell series are deep and moderately well drained. They formed in alluvium washed from the surrounding soils and in the underlying residuum. These soils are in the Piedmont. Slope ranges from 2 to 7 percent.

Abell soils commonly are near Lignum, Nason, and Worsham soils. They have a browner subsoil and are not so poorly drained as Lignum and Worsham soils. They have less clay than Nason soils.

Typical pedon of Abell silt loam, 2 to 7 percent slopes; in a hardwood and pine forest, about 9 miles southwest of Charlottesville, Trail 2591:

O1—1 inch to 0; partly decomposed hardwood leaves and twigs.
A1—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.
A2—2 to 12 inches; light yellowish brown (10YR 6/4) silt loam; moderate fine granular structure; very friable; many fine and medium roots; 2 percent quartz pebbles as much as 2 inches in diameter; very strongly acid; gradual smooth boundary.
B1t—12 to 18 inches; yellowish brown (10YR 5/4) clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium roots; few thin clay films on faces of peds; 2 percent quartz pebbles as much as 1 inch in diameter; very strongly acid; gradual smooth boundary.
B21t—18 to 28 inches; yellowish brown (10YR 5/8) clay loam; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; many medium roots; few thin clay films on faces of peds; 2 percent quartz pebbles as much as 2 inches in diameter; very strongly acid; gradual smooth boundary.
B22t—28 to 36 inches; yellowish brown (10YR 5/6) clay loam; common medium distinct gray (10YR 6/1) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few medium roots; few thin clay films on faces of peds; few fine flakes of mica; line of angular quartz pebbles as much as 3 inches in diameter at a depth of about 34 inches; very strongly acid; clear smooth boundary.
IIC—36 to 48 inches; multicolored brownish yellow (10YR 6/8), light gray (10YR 7/2), and grayish brown (2.5Y 5/2) very channery loam; massive; friable; few vertical clay flows in the upper part; common fine flakes of mica; 30 percent schist fragments as much as 2 inches in length; 12 percent quartz pebbles as much as 3 inches in diameter; very strongly acid; clear wavy boundary.
IICr—48 to 60 inches; multicolored, highly weathered schist that crushes to loamy soil material; hardness increases as depth increases.

The solum is 30 to 60 inches thick. The depth to residuum is about 24 to 48 inches. Depth to bedrock is more than 5 feet. The solum is strongly acid or very strongly acid, unless limed. Angular quartz pebbles, 1/4 inch to 2 inches in diameter, make up 0 to 15 percent of the solum. Coarse fragments range from 0 to 40 percent in the IIC horizon. Gravel lines are common between the alluvium and residuum. Flakes of mica are in the lower part of most pedons.

The A horizon has hue of 7.5YR or 10YR, value of 3 through 6, and chroma of 2 through 6. It is sandy loam, fine sandy loam, silt loam, or loam.

The B horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 4 through 8. Mottles that have chroma of 2 or less are below a depth of about 24 inches. The B horizon is loam, sandy loam, sandy clay loam, or clay loam.

The C horizon is multicolored in shades of brown, yellow, and gray. It commonly is strongly weathered granite, gneiss, or schist that crushes easily to sandy loam or loam and gravelly, very gravelly, channery, or very channery analogues of these textures.

Albemarle Series

Soils of the Albemarle series are deep and well drained. They formed in the weathered products of meta-arkosic sandstone and quartzite. Albemarle soils are on uplands in the Piedmont. Slope commonly ranges from 2 to 45 percent.

Albemarle soils commonly are near Culpeper, Elioak, Hazel, and Louisburg soils. Albemarle soils are not so red in the subsoil as Culpeper and Elioak soils. They have more clay in the subsoil than Hazel and Louisburg soils. They have a thicker solum than Hazel soils.

Typical pedon of Albemarle fine sandy loam, 7 to 15 percent slopes; in forest about 3 miles southwest of Charlottesville, 3/4 mile northwest of the junction of State Highways 20 and 742, 500 yards southwest of Lake Reynovia:

O1—1 inch to 0; partly decomposed forest litter of leaves, twigs, sticks, and other organic material.
A1—0 to 1 inch; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable, nonsticky and nonplastic; many fine and medium roots; extremely acid; abrupt smooth boundary.
A2—1 inch to 5 inches; brownish yellow (10YR 6/6) fine sandy loam; weak fine and medium granular structure; very friable, nonsticky and nonplastic; common fine and medium roots; 2 percent sandstone pebbles as much as 2 inches in diameter; very strongly acid; abrupt smooth boundary.
B1t—5 to 8 inches; yellowish brown (10YR 5/6) sandy clay loam; friable, slightly sticky and slightly plastic; few fine and medium and common coarse roots; thin patchy strong brown (7.5YR 5/6) clay films on faces of peds; few fine flakes of mica; very strongly acid; clear wavy boundary.
B21t—8 to 14 inches; strong brown (7.5YR 5/6) clay loam; moderate medium and fine subangular blocky structure; friable, sticky and slightly plastic; few medium and fine roots; thin continuous yellowish red

(5YR 5/6) clay films on faces of peds; few fine flakes of mica; very strongly acid; gradual wavy boundary.

B22t—14 to 24 inches; yellowish red (5YR 5/8) clay loam; moderate medium and fine subangular blocky structure; firm, sticky and slightly plastic; few fine and medium roots; thin continuous yellowish red (5YR 5/6) clay films on faces of peds; 5 percent reddish yellow (7.5YR 6/8) weathered sandstone fragments; few fine flakes of mica; very strongly acid; gradual wavy boundary.

B3t—24 to 30 inches; yellowish red (5YR 5/6) clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and medium roots; thin patchy clay films on faces of peds; few fine flakes of mica; 10 percent reddish yellow (7.5YR 6/8) highly weathered sandstone fragments; very strongly acid; clear irregular boundary.

C—30 to 38 inches; yellowish brown (10YR 5/8) sandy loam; streaks of yellow (10YR 7/8) and strong brown (7.5YR 5/6); massive; firm, nonsticky and nonplastic; strongly acid; abrupt broken boundary.

Cr—38 to 50 inches; multicolored, moderately weathered, meta-arkosic sandstone; streaks in shades of yellow, brown, white, gray, and red; firm in place, crushes to sandy loam; massive; strongly acid; abrupt wavy boundary.

R—50 inches; hard meta-arkosic sandstone.

The solum is 24 to 48 inches thick. Depth to bedrock is more than 40 inches. The solum is strongly acid or very strongly acid, unless limed. Angular quartz and sandstone pebbles, 1/2 inch to 2 inches in diameter, make up 0 to 10 percent of the solum and 0 to 30 percent of the C horizon.

The A1 horizon has hue of 10YR or 2.5Y, value of 2 through 4, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 4 through 6, and chroma of 3 through 6. An Ap horizon is present in some pedons. If present, it has colors similar to those of the A2 horizon.

The B1 horizon has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 6. It is loam, sandy clay loam, or clay loam.

The B2t and B3 horizons have hue of 5YR through 10YR, value of 4 or 5, and chroma of 6 through 8. The B2t horizon is clay loam or sandy clay loam. The B3 horizon is loam or sandy clay loam.

The C horizon is highly variable in color and commonly contains shades of olive, gray, white, yellow, red, and brown. It is loam, fine sandy loam, sandy loam, or the gravelly analogues of these textures, or it is highly weathered meta-arkosic sandstone that crushes to these textures.

Ashe Series

Soils of the Ashe series are moderately deep and somewhat excessively drained. They formed in the weathered products of granite and granite gneiss. These soils are on the uplands in the Piedmont and on foothills of the Blue Ridge. Slope ranges from 2 to 45 percent.

Ashe soils commonly are near Chester, Hayesville, Parker, and Porters soils. Ashe soils have less clay in the subsoil than all of these soils except Parker soils. Ashe soils have fewer rock fragments throughout than Parker soils.

Typical pedon of Ashe loam, 7 to 15 percent slopes; in pasture, about 9 miles north of Charlottesville, 1 mile northeast of Earlysville, 1/2 mile south of State Highway 664 and 100 yards west of Highway 743:

A1—0 to 5 inches; dark brown (7.5YR 3/2) loam; weak fine granular structure; very friable; many fine roots; few fine flakes of mica; very strongly acid; clear smooth boundary.

A2—5 to 10 inches; brown (7.5YR 4/4) loam; moderate medium granular structure; very friable; common fine roots; few fine flakes of mica; very strongly acid; clear smooth boundary.

B—10 to 19 inches; strong brown (7.5YR 5/6) loam; weak medium subangular blocky structure; very friable, nonsticky and nonplastic; common fine roots; 2 percent angular quartz pebbles as much as 1 inch in diameter; common fine flakes of mica; very strongly acid; clear wavy boundary.

C—19 to 24 inches; multicolored strong brown (7.5YR 5/6), reddish yellow (7.5YR 6/8), reddish brown (5YR 5/3), and yellowish brown (10YR 5/6) sandy loam; massive; friable; very strongly acid; gradual wavy boundary.

Cr—24 to 50 inches; multicolored in shades of brown, yellow, white, and black granite gneiss saprolite that crushes to sandy loam; massive, rock controlled structure; very firm; strongly acid; gradual wavy boundary.

R—50 inches; hard granite gneiss bedrock.

The solum is about 10 to 30 inches thick. The depth to the Cr horizon is 20 to 40 inches. Depth to hard bedrock is more than 48 inches. The solum is strongly acid or very strongly acid, unless limed. Content of angular quartz pebbles and partly weathered granite or granite gneiss fragments ranges from 0 to 15 percent throughout. Fine mica flakes commonly are in the subsoil and the substratum.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 through 4. It is loam or sandy loam.

The B horizon has hue of 5YR through 10YR, value of 4 or 5, and chroma of 4 through 8. It is loam or sandy loam.

The C horizon is multicolored with shades of yellow, brown, white, and black. It is sandy loam or saprolite that crushes to sandy loam.

Belvoir Series

Soils of the Belvoir series are deep and somewhat poorly drained. They formed in the weathered products of granite and granite gneiss. These soils are on uplands in the Piedmont. Slope ranges from 2 to 7 percent.

Belvoir soils commonly are near Braddock, Meadowville, Thurmont, and Worsham soils. Belvoir soils are more poorly drained than Braddock, Meadowville, and Thurmont soils. They have a fragipan, and Worsham soils do not have a fragipan.

Typical pedon of Belvoir loam, 2 to 7 percent slopes; in hardwood forest, about 9 miles northwest of Charlottesville, 3/4 mile west of the junction of State Highways 609 and 665, and 100 yards south of Highway 609:

O1—2 inches to 0; partially decomposed leaves, twigs, and other organic material.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—4 to 12 inches; light yellowish brown (2.5Y 6/4) loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21t—12 to 19 inches; brownish yellow (10YR 6/6) loam; few fine distinct light brownish gray (10YR 6/2) mottles; weak fine subangular blocky structure; friable, slightly plastic and slightly sticky; common fine and medium roots; thin patchy clay films on vertical and horizontal faces of peds; very strongly acid; clear smooth boundary.

Bx—19 to 28 inches; brownish yellow (10YR 6/6) sandy loam; few fine distinct light brownish gray (10YR 6/2) mottles; moderate medium prismatic structure parting to weak thick platy; firm and brittle; medium patchy clay films on vertical faces of peds and thin very patchy clay films on horizontal faces of peds; 10 percent quartz pebbles as much as 10 millimeters in diameter; very strongly acid; clear wavy boundary.

B22t—28 to 34 inches; yellowish brown (10YR 5/6) clay loam; few medium distinct light brownish gray (10YR 6/2) and strong brown (7.5YR 5/8) mottles; moderate coarse angular blocky structure parting to weak fine subangular blocky; friable, sticky and plastic; thin patchy clay films on vertical and horizontal faces of peds; 2 percent pebbles as much as 10 millimeters in diameter; very strongly acid; gradual wavy boundary.

B23t—34 to 45 inches; yellowish brown (10YR 5/8) clay loam; common medium distinct light gray (10YR 7/2) and strong brown (7.5YR 5/6) mottles; moderate coarse angular blocky structure parting to weak fine subangular blocky; friable, sticky and plastic; thin very patchy clay films on vertical and horizontal faces of peds; 2 percent pebbles as much as 20 millimeters in diameter; very strongly acid; clear smooth boundary.

IIC1—45 to 65 inches; light gray (10YR 7/2) and reddish yellow (7.5YR 6/6) clay loam; massive; firm, sticky and plastic; very strongly acid; clear wavy boundary.

IIC2—65 to 72 inches; gray (10YR 6/1) clay loam; many medium prominent yellowish brown (10YR 5/8) mottles; massive; firm, nonsticky and slightly plastic; very strongly acid.

The solum is 30 to 60 inches thick. The depth to the fragipan ranges from 16 to 30 inches. Depth to bedrock is more than 5 feet. Angular quartz pebbles make up 0 to 15 percent of the solum with higher concentrations in or near the fragipan. The solum is very strongly acid or strongly acid, unless limed.

The A horizon has hue of 10YR or 2.5Y, value of 4 through 6, and chroma of 2 through 6. It is loam or sandy loam.

The B2t horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. It is sandy clay loam, clay loam, or loam.

The Bx horizon has colors similar to those in the B2t horizon. It is fine sandy loam, sandy loam, sandy clay loam, or loam.

The C horizon has hue of 7.5YR or 10YR, value of 5 through 7, and chroma of 1 through 8. It is loam, sandy clay loam, clay loam, or clay.

Bermudian Series

Soils of the Bermudian series are deep and well drained. They formed in loamy alluvial material washed from soils on Piedmont uplands underlain by Triassic red shale and conglomerate. Bermudian soils are subject to occasional flooding. Slope ranges from 0 to 2 percent.

Bermudian soils commonly are near Creedmoor, Klinesville, Manassas, Penn, Rowland, and Totier soils. Bermudian soils do not have an argillic horizon as do Creedmoor, Manassas, Penn, and Totier soils. Bermudian soils are deeper to bedrock than Penn and Klinesville soils. They are better drained than Creedmoor and Rowland soils.

Typical pedon of Bermudian silt loam; in a cultivated field, about 18 miles south of Charlottesville, 65 yards west of junction of State Highway 626 and Rock Castle Creek, 10 yards north of Rock Castle Creek:

Ap—0 to 4 inches; dark reddish brown (5YR 3/4) silt loam; moderate fine granular structure; friable, slightly sticky and slightly plastic; many fine and medium roots; medium acid; abrupt smooth boundary.

B1—4 to 12 inches; yellowish red (5YR 4/6) silt loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium and few large roots; medium acid; gradual smooth boundary.

B21—12 to 20 inches; reddish brown (5YR 4/4) silt loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium and few large roots; medium acid; gradual smooth boundary.

B22—20 to 27 inches; dark reddish brown (5YR 3/4) silt loam; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium and few large roots; medium acid; clear wavy boundary.

B23—27 to 39 inches; reddish brown (5YR 4/4) silty clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium and few large roots; few charcoal fragments; medium acid; clear smooth boundary.

B24—39 to 42 inches; reddish brown (5YR 5/3) clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; medium acid; abrupt smooth boundary.

B3—42 to 45 inches; reddish brown (5YR 5/3) sandy clay loam; many medium distinct yellowish red (5YR 5/8), strong brown (7.5YR 5/8), and light gray (5YR 6/1) mottles; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium roots; 10 percent quartz pebbles as much as 1/2 inch in diameter; medium acid; abrupt smooth boundary.

IIC—45 to 60 inches; yellowish red (5YR 4/6) extremely gravelly silt loam; massive; friable, slightly sticky and nonplastic; few fine and medium roots; 70 percent quartz pebbles as much as 2 inches in diameter; medium acid.

The solum is 35 to 50 inches thick. The depth to bedrock is more than 5 feet. Coarse fragments make up 0 to 10 percent of the A and B1 horizons and the upper part of the B2 horizon, 0 to 30 percent of the lower part of the B2 horizon and the B3 horizon, and 10 to 80 percent of the IIC horizon. The solum ranges from strongly acid to medium acid throughout, unless limed.

The Ap horizon has hue of 2.5YR through 7.5YR, value of 3 or 4, and chroma of 2 through 4.

The B1 horizon has hue of 7.5YR through 2.5YR, value of 3 through 5, and chroma of 4 through 6.

The B2 horizon has hue of 5YR or 2.5YR, value of 3 through 5, and chroma of 3 or 4. It is silt loam or silty clay loam but ranges to clay loam in the lower part.

The B3 horizon has hue of 7.5YR through 2.5YR, value of 4 through 6, and chroma of 1 through 8.

The IIC horizon is variable in color and texture but is dominated by gravel.

Braddock Series

Soils of the Braddock series are deep and well drained. They are on colluvial fans and terraces in the foothills of the Blue Ridge. These soils formed in colluvial and alluvial materials from acid crystalline rock. Slope ranges from 2 to 25 percent.

Braddock soils commonly are near Ashe, Hayesville, Meadowville, and Thurmont soils. They have a thicker solum than Ashe soils. Braddock soils have mixed mineralogy, and Hayesville soils have oxidic mineralogy. They are on higher landscape positions and are better drained than Meadowville soils. Braddock soils have a redder subsoil than Thurmont soils.

Typical pedon of Braddock loam, 2 to 7 percent slopes; about 12 miles west northwest of Charlottesville, 1.5 mile southwest of White Hall on State Highway 810 and 100 yards south of the road:

Ap—0 to 8 inches; brown (7.5YR 4/4) loam; moderate fine granular structure; very friable; many fine and medium roots; slightly acid; clear smooth boundary.

B1—8 to 12 inches; yellowish red (5YR 4/6) clay loam; weak fine subangular blocky structure; friable; few fine roots; few fine and medium pores; 5 percent angular quartz pebbles as much as 2 inches in diameter; medium acid; gradual smooth boundary.

B21t—12 to 23 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; friable, sticky and slightly plastic; common fine and medium pores; few thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—23 to 40 inches; red (2.5YR 4/6) clay; strong fine and medium subangular blocky structure; firm, sticky and slightly plastic; common thin clay films on faces of peds; 2 percent quartz pebbles as much as 1 inch in diameter; very strongly acid; gradual smooth boundary.

B31t—40 to 50 inches; red (2.5YR 4/6) clay loam; few medium distinct strong brown (7.5YR 5/8) mottles; weak fine and medium subangular blocky structure; friable, sticky and plastic; few thin patchy clay films on faces of peds; 10 percent quartz pebbles as much as 1 inch in diameter; strongly acid; gradual wavy boundary.

B32—50 to 60 inches; red (2.5YR 4/6) clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak very fine subangular blocky structure; common fine mica flakes; strongly acid.

The solum is more than 40 inches thick. The depth to bedrock is more than 5 feet. The content of coarse fragments ranges from 0 to 5 percent in the A horizon and from 0 to 15 percent in the B horizon. The IIB and C horizons if present are 0 to 40 percent coarse fragments. The solum is very strongly acid or strongly acid, unless limed.

The A horizon has hue of 7.5YR or 10YR, value of 3 through 5, and chroma of 2 through 6. It is loam or clay loam.

The B1 horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 or 8. It is sandy clay loam or clay loam.

The B horizon has hue of 10R or 2.5YR, value of 4 through 6, and chroma of 6 or 8. The B horizon is clay loam or clay. A IIB horizon is present in some pedons. It has colors similar to those of the B horizon. It is mottled and is clay loam or clay or their gravelly analogues.

The IIC horizon, if present, is multicolored, and the percent of coarse fragments is highly variable.

Buncombe Series

Soils of the Buncombe series are deep and excessively drained. They formed in sandy alluvium. These soils are along streams in the Piedmont. Slope is 0 to 2 percent.

Buncombe soils commonly are near Chewacla, Riverview, and Toccoa soils. Buncombe soils are better drained and have less clay than all of these soils.

Typical pedon of Buncombe loamy sand; in a cultivated field, 15 miles south of Charlottesville, about 100 yards west of Warren Ferry and 10 yards north of the James River:

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) loamy sand; single grain; loose; common fine roots; 2 percent quartz pebbles less than 2 inches in diameter; common fine flakes of mica; slightly acid; gradual smooth boundary.

C1—10 to 15 inches; brown (10YR 4/3) sand; single grain; loose; common fine roots; common fine flakes of mica; slightly acid; gradual smooth boundary.

C2—15 to 30 inches; brown (10YR 4/3) sand; single grain; loose; common fine roots; few decomposed wood fragments; common fine flakes of mica; slightly acid; gradual smooth boundary.

C3—30 to 43 inches; brown (10YR 4/3) sand; single grain; loose; common fine roots; common fine flakes of mica; few decomposed wood fragments; slightly acid; clear boundary.

C4—43 to 48 inches; dark yellowish brown (10YR 4/4) loamy sand; single grain; loose; common fine roots; few worm channels filled with dark brown (10YR 3/3) sandy loam; common fine flakes of mica; slightly acid; gradual smooth boundary.

C5—48 to 60 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; common fine roots; few worm channels filled with dark brown (10YR 3/3) sandy loam; common fine flakes of mica; slightly acid.

Depth to bedrock is more than 5 feet. The pedon is very strongly acid to slightly acid throughout, unless limed. Coarse fragments range from 0 to 2 percent, but layers of pebbles and cobblestones are in the horizons of some pedons. Mica flakes are few to many throughout.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 through 6.

The C horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 3 through 6. The C horizon commonly is loamy sand or sand; however, below a depth of 40 inches in many pedons it ranges from sand to fine sandy loam and can be stratified.

Cataska Series

Soils of the Cataska series are moderately deep and excessively drained. They formed in the weathered products of sandstone, shale, and phyllite. These soils are on uplands in the Blue Ridge. Slope ranges from 7 to 60 percent. The Cataska soils in this survey area are mapped in a complex with Hartleton soils.

Cataska soils commonly are near Catoctin, Hartleton, Myersville, and Tusquitee soils. Cataska soils have a lower percent base saturation than Catoctin and Myersville soils. Cataska soils are shallower to bedrock than Hartleton, Myersville, and Tusquitee soils.

Typical pedon of Cataska channery loam in an area of Cataska-Hartleton very stony loams, 25 to 60 percent slopes; in hardwood forest, about 20 miles northwest of Charlottsville, 0.3 mile south of milepost 86 on Skyline Drive, and 35 yards east of Skyline Drive:

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) channery loam; weak fine granular structure; very friable; many fine and medium roots; 30 percent phyllite and shale fragments as much as 3 inches in length; medium acid; clear smooth boundary.

A2—2 to 5 inches; brown (10YR 4/3) channery loam; moderate fine granular structure; very friable; many fine and medium roots; 30 percent phyllite and shale fragments as much as 4 inches in length; strongly acid; gradual smooth boundary.

B1—5 to 9 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine subangular blocky structure; very friable; common fine roots; 55 percent phyllite and shale fragments as much as 4 inches in length; very strongly acid; gradual wavy boundary.

B2—9 to 20 inches; yellowish brown (10YR 5/4) very channery silt loam; moderate fine subangular blocky structure; friable; 55 percent phyllite and shale fragments as much as 5 inches in length; very strongly acid; gradual wavy boundary.

Cr—20 to 38 inches; 90 percent soft to very hard phyllite and shale fragments as much as 6 inches in length coated with light yellowish brown (10YR 6/4) loam;

rock controlled structure; very strongly acid; gradual wavy boundary.

R—38 inches; hard phyllite and shale bedrock.

The solum is 12 to 20 inches thick. The depth to hard bedrock ranges from 20 to 40 inches. Fragments of shale and phyllite range from 20 to 35 percent in the A horizon, 35 to 70 percent in the B horizon, and 70 to 90 percent in the C horizon. The solum is strongly acid or very strongly acid throughout, unless limed.

The A horizon has hue of 10YR, value of 3 through 5, and chroma of 2 through 4. It is channery analogues of loam or silt loam.

The B horizon has hue of 10YR, value of 4 or 5, and chroma of 4 or 6. It is channery or very channery analogues of silt loam or loam.

The Cr horizon has hue of 10YR, value of 5 or 6, and chroma of 4 or 6. It commonly is oriented phyllite and shale coated with silt loam or loam.

Catoctin Series

Soils of the Catoctin series are moderately deep and well drained. They are on Southwest Mountain in the Piedmont and on the Blue Ridge. These soils formed in materials weathered primarily from greenstone. Slope ranges from 7 to 60 percent.

Catoctin soils commonly are near Fauquier, Lew, Myersville, and Rabun soils. Catoctin soils have more coarse fragments and a thinner solum than these soils.

Typical pedon of Catoctin silt loam, 25 to 45 percent slopes; in mixed hardwood forest, about 10 miles northeast of Charlottesville, 2 miles northwest of Cismont, and 70 yards west of State Highway 600:

A1—0 to 2 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; 10 percent greenstone channers as much as 4 inches in length; medium acid; gradual smooth boundary.

A2—2 to 5 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; many fine and medium roots; 12 percent greenstone channers as much as 3 inches in length; strongly acid; clear wavy boundary.

B—5 to 18 inches; strong brown (7.5YR 5/6) very channery silt loam; moderate fine subangular blocky structure; interrupted by irregularly shaped bodies of reddish brown (5YR 4/4) silty clay loam with moderate fine subangular blocky structure and thin patchy clay films on faces of peds; friable; common medium and large roots; 40 percent greenstone channers as much as 4 inches in length; strongly acid; gradual irregular boundary.

C—18 to 28 inches; yellowish brown (10YR 5/4) extremely channery silt loam; massive; friable; 70 percent greenstone channers and quartz fragments as much as 6 inches in length; medium acid; gradual irregular boundary.

R—28 inches; hard greenstone bedrock.

The solum ranges from 12 to 24 inches in thickness. The depth to bedrock ranges from 20 to 40 inches. Content of rock fragments ranges from 5 to 35 percent in the A horizon, from 35 to 55 percent in the B horizon, and from 35 to 80 percent in the C horizon. The solum is strongly acid or medium acid, unless limed. The C horizon is medium acid to neutral.

The A horizon has hue of 7.5YR or 10YR, value of 3 through 5, and chroma of 2 through 4. It is loam or silt loam or their channery, cobbly, or stony analogues.

The B horizon has hue of 5YR through 2.5Y, value of 4 or 5, and chroma of 4 through 8. It is silt loam or silty clay loam or their very channery analogues.

The C horizon has colors similar to those of the B horizon, or it is multicolored. It is loamy and is 35 to 80 percent rock fragments.

Chester Series

Soils of the Chester series are deep and well drained. They formed in the weathered products of granite and granite gneiss. These soils are on uplands in the Piedmont. Slope ranges from 2 to 45 percent.

Chester soils commonly are near Ashe, Hayesville, and Meadowville soils. Chester soils have more clay in the subsoil than Ashe soils. They are not so red or do not have as much clay in the subsoil as Hayesville soils. Chester soils do not have the lithologic discontinuity that Meadowville soils have.

Typical pedon of Chester loam, 7 to 15 percent slopes; in pasture, about 5 miles north of Charlottesville, 0.6 mile south of the junction of State Highways 660 and 661 and 200 yards south of 661:

Ap—0 to 7 inches; dark brown (10YR 4/3) loam; weak fine granular structure; very friable; many fine roots; few fine flakes of mica; strongly acid; abrupt smooth boundary.

B1—7 to 13 inches; strong brown (7.5YR 5/6) loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; common fine flakes of mica; very strongly acid; clear smooth boundary.

B21t—13 to 18 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine roots; few thin clay films on faces of peds; common fine flakes of mica; very strongly acid; gradual smooth boundary.

B22t—18 to 34 inches; yellowish red (5YR 5/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; few thin clay films on faces of peds;

many fine flakes of mica; very strongly acid; gradual wavy boundary.

B3—34 to 41 inches; yellowish red (5YR 5/8) loam; weak medium subangular blocky structure; friable, slightly sticky and nonplastic; few fine roots; many fine flakes of mica; very strongly acid; clear wavy boundary.

C1—41 to 48 inches; light yellowish brown (10YR 6/4), yellowish red (5YR 5/6), and strong brown (7.5YR 5/8) loam; massive; friable; few very fine roots; many fine flakes of mica; very strongly acid; gradual wavy boundary.

C2—48 to 60 inches; yellowish brown (10YR 5/6), strong brown (7.5YR 5/8), white (10YR 8/2), and very dark gray (10YR 3/1) sandy loam; massive; friable; few very fine roots; many fine flakes of mica; very strongly acid.

The solum is 30 to 50 inches thick. The depth to hard bedrock is more than 5 feet. The solum is strongly acid or very strongly acid, unless limed. It is 0 to 15 percent fragments of quartz, granite, or gneiss ranging in size from pebbles to stones.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 through 4. It is loam or silt loam.

The B horizon has hue of 5YR through 10YR, value of 4 or 5, and chroma of 4 through 8. It is loam to silty clay loam.

The C horizon commonly is multicolored in hue of 10YR or 7.5YR, value of 3 through 8, and chroma of 1 through 8. It is silt loam, loam, or sandy loam.

Chewacla Series

Soils of the Chewacla series are deep and somewhat poorly drained. They formed in alluvium. These soils are on flood plains along streams throughout the survey area. They are subject to occasional flooding. Slope is 0 to 2 percent.

Chewacla soils commonly are near Dogue, Riverview, Toccoa, Wahee, and Wehadkee soils. Chewacla soils are not so well drained as Dogue, Riverview, and Toccoa soils. They have less clay in the solum and are less developed than Dogue or Wahee soils. Chewacla soils are not so poorly drained as Wahadkee soils.

Typical pedon of Chewacla silt loam; in a cultivated field, about 6 miles southeast of Charlottesville, 0.3 mile west of the junction of State Highway 729 and Buck Island Creek, and 170 yards north of Buck Island Creek:

Ap—0 to 8 inches; dark brown (7.5YR 4/4) silt loam; moderate fine granular structure; very friable, slightly sticky and slightly plastic; many fine roots; few fine flakes of mica; neutral; abrupt smooth boundary.

B1—8 to 16 inches; light yellowish brown (10YR 6/4) silt loam; common fine distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine roots; few fine brown concretions; few fine flakes of mica; slightly acid; gradual smooth boundary.

B21—16 to 26 inches; pale brown (10YR 6/3) silty clay loam; common coarse prominent yellowish red (5YR 4/6) and few fine faint light gray (10YR 7/2) mottles; moderate fine subangular blocky structure; friable, slightly sticky and plastic; common fine roots; few fine brown concretions, few fine flakes of mica; slightly acid; gradual wavy boundary.

B22—26 to 40 inches; light brownish gray (10YR 6/2) silty clay loam; common fine distinct strong brown (7.5YR 5/6) and few fine distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; common fine brown concretions; few fine flakes of mica; medium acid; gradual wavy boundary.

B23—40 to 60 inches; yellowish brown (10YR 5/4) and light brownish gray (2.5YR 6/2) silt loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine brown concretions; few fine flakes of mica; medium acid.

The solum is 40 to 60 inches thick. The depth to bedrock is more than 5 feet. The solum is strongly acid to slightly acid, unless limed. Flakes of mica are few to many throughout the solum.

The A horizon has hue of 10YR or 7.5YR, value of 3 through 5, and chroma of 2 through 4.

The upper part of the B horizon has hue of 10YR through 5YR, value of 3 through 6, and chroma of 3 or 4. The lower part of the B horizon has hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 1 through 4. Gray mottles are within a depth of 24 inches, and high chroma mottles are common in the B horizon. The B horizon ranges from loam to silty clay loam.

A C horizon is present in some pedons. It consists of stratified alluvial deposits of sand and gravel, loam, sandy loam, or loamy sand.

Craigsville Series

Soils of the Craigsville series are deep and well drained. They formed in moderately coarse textured alluvium. These soils are along streams near the base of the Blue Ridge. Slope is 0 to 2 percent.

Craigsville soils commonly are near Ashe, Braddock, and Thurmont soils. Craigsville soils contain more coarse fragments and are deeper to bedrock than Ashe soils. They have more coarse fragments and less clay in the subsoil than Braddock or Thurmont soils.

Typical pedon of Craigsville loam; in pasture, about 12 miles northwest of Charlottesville, 3/4 mile northwest of the junction of State Highways 810 and 614, 20 yards north of the Moormans River:

Ap—0 to 8 inches; brown (7.5YR 4/4) loam; weak fine and very fine granular structure; friable, slightly sticky and nonplastic; many fine and medium roots; 10 percent pebbles of greenstone, granite, and quartzite as much as 3 inches in diameter; medium acid; clear smooth boundary.

B1—8 to 15 inches; brown (7.5YR 4/4) gravelly sandy loam; weak fine and medium subangular blocky structure; very friable; common fine and medium roots; 15 percent pebbles and 5 percent cobbles of greenstone, granite, and quartzite as much as 8 inches in diameter; strongly acid; abrupt smooth boundary.

B2—15 to 23 inches; brown (7.5YR 4/4) very cobbly sandy loam; weak very fine subangular blocky structure; very friable; common fine and medium roots; few organic stains on faces of rock fragments; 30 percent pebbles and 30 percent cobbles of greenstone, granite, and quartzite as much as 8 inches in diameter; strongly acid; gradual wavy boundary.

C1—23 to 38 inches; strong brown (7.5YR 4/6) extremely cobbly sandy loam; massive; very friable; common fine and medium roots; 30 percent pebbles and 30 percent cobbles of greenstone, granite, and quartzite as much as 10 inches in diameter and 10 percent stones of greenstone as much as 15 inches in diameter; strongly acid; gradual wavy boundary.

C2—38 to 60 inches; strong brown (7.5YR 4/6) extremely gravelly loamy sand; single grain; loose; few fine and medium roots; 40 percent pebbles and 20 percent cobbles of greenstone, granite, and quartzite as much as 10 inches in diameter and 15 percent stones of greenstone as much as 15 inches in diameter; strongly acid.

The solum is 20 to 40 inches thick. The depth to bedrock is more than 5 feet. Pebbles and cobbles make up 5 to 15 percent of the A horizon, 15 to 70 percent of the B horizon, and 35 to 70 percent of the C horizon. Stones make up 0 to 15 percent of the C horizon. The pedon is very strongly acid to medium acid throughout, unless limed.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3 or 4.

The B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6. It is gravelly, very gravelly, cobbly, or very cobbly analogues of loam or sandy loam.

The C horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 through 6. It is very gravelly, gravelly, cobbly, or very cobbly analogues of loamy sand or sandy loam. Thin, unconforming horizons may have less than 15 percent gravel or cobbles.

Creedmoor Series

Soils of the Creedmoor series are deep and moderately well drained to somewhat poorly drained. They formed in alluvial and residual materials weathered from Triassic shale. These soils are on uplands in the Piedmont. Slope is 2 to 7 percent.

Creedmoor soils commonly are near Manassas, Mayodan, Penn, and Totier soils. Creedmoor soils are more poorly drained than these soils and have more clay in the solum than Manassas and Penn soils.

Typical pedon of Creedmoor loam, 2 to 7 percent slopes; in a hay field, about 18 miles south of Charlottesville, 210 yards east of the junction of State Highways 626 and 627, and 50 yards north of 626:

Ap—0 to 8 inches; brown (7.5YR 5/4) loam; weak fine and medium granular structure; friable, slightly sticky and slightly plastic; common fine roots; neutral; abrupt smooth boundary.

B1—8 to 14 inches; yellowish brown (10YR 5/6) silty clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; many brown (10YR 4/3) krotovinas; slightly acid; clear smooth boundary.

B21t—14 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; common medium faint strong brown (7.5YR 5/6) mottles; moderate medium and fine subangular blocky structure; friable, sticky and plastic; few fine roots; common thin clay films on faces of peds; common brown (10YR 4/3) krotovinas; medium acid; clear smooth boundary.

B22t—22 to 43 inches; yellowish brown (10YR 5/6) clay; common medium distinct light gray (10YR 7/2) mottles; moderate fine and medium subangular blocky structure; firm, sticky and plastic; common thin clay films on faces of peds; very strongly acid; gradual smooth boundary.

B3tg—43 to 60 inches; light gray (10YR 7/2) clay; many coarse distinct brownish yellow (10YR 6/6) and few fine prominent reddish yellow (7.5YR 6/8) mottles; weak medium and coarse subangular blocky structure; firm, sticky and plastic; many fine vesicular pores; common thick clay films on faces of peds; very strongly acid; clear smooth boundary.

IIC—60 to 70 inches; multicolored red (2.5YR 4/8) and reddish yellow (7.5YR 6/8) clay loam; few pockets of light gray (2.5Y 7/2) silty clay; massive; firm, sticky and plastic; 2 percent quartz pebbles as much as 2 inches in diameter at top of horizon; very strongly acid.

The solum is 40 to 70 inches thick. The depth to bedrock is more than 5 feet. The solum is strongly acid or very strongly acid throughout, unless limed.

The A1 horizon, if present, has hue of 10YR or 2.5Y, value of 3 through 6, and chroma of 2 through 4. The Ap horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 through 6. The A2 horizon, if present, has hue of 10YR or 2.5Y, value of 6, and chroma of 2 through 4.

The B1 horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 through 6. The B2t horizon has hue of 5YR through 10YR, value of 5 or 6, and chroma of 4 through 6. The B2t horizon is silty clay loam or clay. The B3 horizon has hue of 2.5YR through 10YR, value of 5 through 7, and chroma of 1 or 2.

The IIC horizon has hue of 2.5YR through 7.5YR, value of 4 through 7, and chroma of 2 through 8.

Cullen Series

Soils of the Cullen series are deep and well drained. They formed in the weathered products of mixed basic and acidic rocks. These soils are on uplands in the Piedmont. Slope ranges from 2 to 25 percent.

Cullen soils commonly are near Ashe, Fluvanna, Hayesville, and Orange soils. They have a redder subsoil than Ashe, Fluvanna, and Orange soils. In addition, Cullen soils have more clay in the subsoil and a thicker solum than Ashe soils. Cullen soils have mixed mineralogy, and Hayesville soils have oxidic mineralogy.

Typical pedon of Cullen loam, 2 to 7 percent slopes; in a cultivated field, about 4 miles northwest of Charlottesville, 1.5 miles southeast of the junction of State Highways 601 and 658, and 0.75 mile southeast of 658:

Ap—0 to 8 inches; reddish brown (5YR 4/4) loam; moderate fine granular structure; friable; many fine roots; 1 percent angular quartz pebbles as much as 1/2 inch in diameter; medium acid; abrupt smooth boundary.

B21t—8 to 11 inches; dark reddish brown (5YR 3/4) clay; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and medium roots; few thin clay films on faces of peds; 1 percent quartz pebbles as much as 1 inch in diameter; medium acid; clear smooth boundary.

B22t—11 to 30 inches; red (10YR 4/6) clay; strong fine and medium subangular blocky structure; firm, sticky and slightly plastic; few fine roots; common thin clay films on faces of peds; 1 percent angular quartz pebbles as much as 1 inch in diameter; strongly acid; clear smooth boundary.

B23t—30 to 48 inches; dark red (10R 3/6) clay; strong fine and medium subangular blocky structure; firm, sticky and plastic; continuous medium clay films on faces of peds; 3 percent quartz pebbles as much as 2 inches in diameter; strongly acid; clear wavy boundary.

B3t—48 to 60 inches; red (10YR 4/6) clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak fine subangular blocky structure; friable, sticky and slightly plastic; few thin clay films on faces of peds; few fine flakes of mica; 6 percent weathered granodiorite fragments 2 to 4 inches in length; strongly acid; gradual smooth boundary.

C—60 to 67 inches; red (2.5YR 4/6), yellowish red (5YR 5/6), and yellowish brown (10YR 5/6) loam; massive; friable; common fine flakes of mica; 10 percent weathered hornblende gneiss fragments; strongly acid; gradual wavy boundary.

Cr—67 to 81 inches; partly weathered granodiorite.

The solum is 40 to 60 inches thick. The depth to hard rock is more than 5 feet. The solum ranges from medium acid to strongly acid, unless limed. Angular quartz pebbles 1/4 inch to 2 inches in diameter and weathered rock fragments 1 inch to 4 inches in length make up 0 to 10 percent of the solum.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 through 4. It ranges from fine sandy loam to silt loam and is clay loam in severely eroded areas.

The Bt horizon has hue of 2.5YR or 10R, value of 3 or 4, and chroma of 4 through 8. It is clay, clay loam, or silty clay.

The C horizon is strongly weathered hornblende gneiss that crushes easily to clay loam or loam. In some pedons, the C horizon contains as much as 20 percent fragments of weathered granodiorite or similar kind of rock.

Culpeper Series

Soils of the Culpeper series are deep and well drained. They formed in the weathered products of meta-arkosic sandstone and quartzite. These soils are on uplands in the Piedmont. Slope ranges from 2 to 25 percent.

Culpeper soils commonly are near Albemarle, Elioak, Hazel, and Louisburg soils. Culpeper soils are redder and have more clay in the solum than the Albemarle, Hazel, and Louisburg soils. They have more sand and less silt than the Elioak soils.

Typical pedon of Culpeper fine sandy loam, 2 to 7 percent slopes; in hardwood forest, about 3 miles southwest of Charlottesville, 3/4 mile northwest of junction of State Highways 20 and 742, 1/3 mile southwest of Lake Reynovia:

O1—1 inch to 0; partially decomposed leaves, twigs, and other organic material.

A1—0 to 2 inches; brown (10YR 4/3) fine sandy loam; weak very fine granular structure; very friable, nonsticky and nonplastic; many fine roots; 2 percent angular quartz pebbles as much as 2 inches in diameter; very strongly acid; abrupt smooth boundary.

A2—2 to 8 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; very friable, nonsticky and nonplastic; many fine and medium roots; 2 percent angular quartz pebbles less than 2 inches in diameter; strongly acid; gradual smooth boundary.

B21t—8 to 15 inches; yellowish red (5YR 5/8) clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium roots; thin patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

B22t—15 to 30 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; few medium roots; thin continuous clay films on faces of peds; 2 percent weathered sandstone fragments as much as 2 inches in diameter; few medium flakes of mica; very strongly acid; gradual smooth boundary.

B3t—30 to 37 inches; red (2.5YR 4/8) sandy clay loam; common medium distinct yellowish red (5YR 5/6) and brownish yellow (10YR 6/8) mottles; weak medium and fine subangular blocky structure; friable, slightly sticky and slightly plastic; few medium roots; thin very patchy clay films on vertical faces of peds; very strongly acid; abrupt smooth boundary.

C—37 to 45 inches; reddish yellow (5YR 6/6) fine sandy loam; massive; loose, nonsticky and nonplastic; strongly acid; abrupt smooth boundary.

Cr—45 to 50 inches; yellowish brown (10YR 5/8) highly weathered arkosic sandstone streaked with yellow (10YR 7/8) and strong brown (7.5YR 5/8) that crushes to fine sandy loam; massive; very firm in place; very strongly acid; gradual wavy boundary.

R—50 inches; hard meta-arkosic sandstone.

The solum is 30 to 50 inches thick. The depth to hard bedrock ranges from 4 to 6 feet. The solum is very strongly acid or strongly acid throughout, unless limed. Content of coarse fragments ranges from 0 to 10 percent in the solum and from 0 to 30 percent in the C horizon.

The A horizon has hue of 2.5Y through 7.5YR, value of 3 through 6, and chroma of 2 through 8. It is fine sandy loam, sandy loam, sandy clay loam, or clay loam and gravelly analogues of these textures.

The B1 horizon, where present, has hue of 5YR, value of 4 through 6, and chroma of 3 through 8. It is sandy clay loam, clay loam, or loam.

The B21t horizon has hue of 10R through 5YR, value of 4 or 5, and chroma of 6 or 8. The B22t and B3 horizons have hue of 10R or 2.5YR, value of 4 or 5, and chroma of 6 or 8. The B horizon is clay or clay loam. The B3 horizon is sandy clay loam or clay loam.

The C horizon commonly is multicolored, but in some pedons it has a single matrix color. It is fine sandy loam or gravelly fine sandy loam.

Davidson Series

Soils of the Davidson series are deep and well drained. They formed in the weathered products of greenstone. These soils are on uplands in the Piedmont. Slopes are 2 to 15 percent.

Davidson soils commonly are near Catoctin, Myersville, and Rabun soils. Davidson soils have more clay in the subsoil and a redder and thicker solum than Catoctin and Myersville soils. They have a thicker solum than Rabun soils.

Typical pedon of Davidson clay loam, 2 to 7 percent slopes; in mixed hardwood forest, about 10 miles southwest of Charlottesville, 2 miles south of Carters Bridge along State Highway 627:

A1—0 to 4 inches; dark reddish brown (2.5YR 3/4) clay loam; strong medium granular structure; very friable; many fine and medium roots; 3 percent quartz fragments as much as 1 inch in diameter; medium acid; clear smooth boundary.

B1—4 to 10 inches; dark red (2.5YR 3/6) clay loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; many fine and medium roots; medium acid; gradual smooth boundary.

B21t—10 to 26 inches; dark red (2.5YR 3/6) clay; strong fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; few fine and medium roots; few thin clay films on faces of peds; 3 percent greenstone fragments as much as 1/2 inch in length; medium acid; gradual smooth boundary.

B22t—26 to 52 inches; dark red (10R 3/6) clay; strong medium subangular blocky structure; firm, slightly sticky and slightly plastic; many thin clay films on faces of peds; 3 percent greenstone fragments as much as 2 inches in length; medium acid; gradual smooth boundary.

B23t—52 to 63 inches; dark red (10R 3/6) clay; strong fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; many thin clay films on faces of peds; 3 percent greenstone fragments as much as 3 inches in length; medium acid; gradual wavy boundary.

B3t—63 to 88 inches; dark red (10R 3/6) clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable, nonsticky and slightly plastic; few thin clay films on faces of peds; 5 percent greenstone fragments less than 3 inches in length; strongly acid; clear wavy boundary.

C—88 to 105 inches; multicolored red (10R 4/8), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/8) weathered greenstone that crushes to silty clay loam; massive; firm; strongly acid.

The solum is 60 to 100 inches or more thick. The depth to hard rock is more than 5 feet. The solum is medium acid or strongly acid, unless limed. Angular quartz pebbles 1/4 inch to 2 inches in diameter and weathered rock fragments 1 inch to 4 inches in length make up 0 to 10 percent of the solum.

The A horizon has hue of 2.5YR or 5YR, value of 2 or 3, and chroma of 2 through 4. It is clay loam but ranges to clay in severely eroded areas.

The B2t horizon has hue of 2.5YR or 10R, value of 3, and chroma of 2 through 6. The B3t horizon has hue of 2.5YR or 10R, value of 3 or 4, and chroma of 2 through 8. It is clay, clay loam, or silty clay loam.

The C horizon is mottled in shades of red, yellow, brown, and black. It is highly weathered greenstone that crushes to silty clay loam, clay loam, or silty clay.

Dogue Series

Soils of the Dogue series are deep and moderately well drained. They formed in alluvium. These soils are along the larger streams in the Piedmont. Slope is 2 to 7 percent.

Dogue soils commonly are near Chewacla, McQueen, and Wahee soils. Dogue soils have more clay in the subsoil than Chewacla soils. They are not so well drained as McQueen soils and are better drained than Wahee soils.

Typical pedon of Dogue silt loam, 2 to 7 percent slopes; in a cultivated field, about 11 miles south of Charlottesville, 3/4 mile southeast of State Highway 795 bridge across Hardware River, 200 yards west of river, 70 yards north of farm road:

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

B1t—10 to 14 inches; yellowish brown (10YR 5/6) clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; many fine roots; few thin clay films on faces of peds; slightly acid; clear smooth boundary.

B21t—14 to 24 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; firm, sticky and plastic; common fine roots; common thin continuous clay films on faces of peds; medium acid; clear smooth boundary.

B22t—24 to 36 inches; yellowish brown (10YR 5/6) clay; common fine prominent light gray (10YR 7/1) and common fine distinct reddish yellow (5YR 6/8) mottles; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; few medium clay films on faces of peds; strongly acid; clear smooth boundary.

B23t—36 to 43 inches; yellowish brown (10YR 5/8) clay loam; many coarse distinct light gray (10YR 7/1) mottles; moderate coarse subangular blocky structure; friable, sticky and slightly plastic; few thin clay films on faces of peds; strongly acid; gradual smooth boundary.

B3t—43 to 52 inches; strong brown (7.5YR 4/6) clay loam; common medium prominent light gray (10YR 7/1) mottles; weak medium subangular blocky structure; friable, sticky and slightly plastic; strongly acid; gradual smooth boundary.

IIC—52 to 70 inches; strong brown (7.5YR 5/6) clay loam; few fine prominent mottles of light gray (10YR 7/2); massive; friable, slightly sticky and slightly plastic; 5 percent rounded pebbles of quartz; strongly acid.

The solum is 40 to 60 inches thick. The depth to bedrock is more than 5 feet. The solum is strongly acid or very strongly acid, unless limed. Rounded pebbles of quartz and other rocks, 1/4 inch to 3 inches in diameter, make up 0 to 15 percent of the solum and 0 to 25 percent of the C horizon.

The A horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 through 7. The A2 horizon, where present, has value of 5 through 7 and chroma of 4 through 6. The A horizon is loam, silt loam, or fine sandy loam.

The B1t horizon, where present, has hue of 10YR or 2.5Y, value of 5 through 7, and chroma of 4 through 8. It is clay loam or sandy clay loam.

The B2t horizon has hue of 7.5YR, 10YR, or 2.5Y, value of 4 through 6, and chroma of 4 through 8. Low chroma mottles are below a depth of about 24 inches. The B2t horizon is clay loam or clay.

The B3t horizon, where present, has colors similar to those of the B2t horizon. It is clay loam, sandy clay loam, or loam.

The C horizon commonly is stratified and ranges from sandy loam to clay loam.

Dyke Series

Soils of the Dyke series are deep and well drained. They formed in colluvium from greenstone in the Blue Ridge. Slope ranges from 2 to 25 percent.

Dyke soils commonly are near Braddock, Davidson, Hayesville, Rabun, and Unison soils. Dyke soils have darker red colors throughout than Braddock, Hayesville, and Unison soils. They are not so deep as Davidson soils. They have a lithologic discontinuity not present in Davidson and Rabun soils. Also, Dyke soils have mixed mineralogy, and Rabun soils have kaolinitic mineralogy.

Typical pedon of Dyke silt loam, 2 to 7 percent slopes; in a field, about 7 miles south of Charlottesville, 3 miles southwest of the junction of State Highways 627 and 795, 3/4 mile northwest of 627, 100 yards east of cemetery:

Ap—0 to 8 inches; dark reddish brown (2.5YR 3/4) silt loam; moderate very fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.

B1t—8 to 15 inches; dark red (2.5YR 3/6) clay loam; weak fine subangular blocky structure; firm, sticky and slightly plastic; many fine and medium roots;

few thin patchy clay films on faces of peds; common dark oxide concretions; slightly acid; clear smooth boundary.

B21t—15 to 30 inches; dark red (10R 3/6) clay; weak fine and medium subangular blocky structure; firm, sticky and plastic; common thin patchy clay films on faces of peds; common dark oxide concretions; medium acid; gradual smooth boundary.

B22t—30 to 43 inches; dark red (10R 3/6) clay; weak medium subangular blocky structure; firm, sticky and plastic; many medium clay films on faces of peds; common dark oxide concretions; medium acid; abrupt wavy boundary.

IIB23t—43 to 64 inches; dark red (2.5YR 3/6) clay; few medium distinct strong brown (7.5YR 5/6) mottles; weak fine angular blocky structure; friable, slightly sticky and slightly plastic; few thin patchy clay films on faces of peds; upper 3 inches has 20 percent greenstone and quartzite pebbles as much as 2 inches in diameter; strongly acid.

The solum is 40 to 70 inches thick. The depth to bedrock is more than 5 feet and commonly more than 10 feet. In some pedons, pebbles and cobblestones are in stone lines. The solum is 0 to 25 percent gravel and cobbles. The soil is strongly acid or very strongly acid, unless limed.

The Ap horizon has hue of 2.5YR or 5YR, value of 2 or 3, and chroma of 2 through 6. It is silt loam, or eroded areas are clay loam.

The Bt horizon has hue of 10R or 2.5YR, value of 2 or 3, and chroma of 2 through 6. The value and chroma of 2 are restricted to the B1 horizon. The B horizon is clay, silty clay, silty clay loam, or clay loam. Gravel, cobble, or stone lines are at the top of the lithologic discontinuity in most pedons.

Elioak Series

Soils of the Elioak series are deep and well drained. They formed in material weathered from micaceous crystalline rock. These soils are in the Piedmont. Slope ranges from 2 to 25 percent.

Elioak soils commonly are near Glenelg, Hazel, Manor, and Worsham soils. Elioak soils have a redder, more clayey subsoil than Glenelg, Hazel, and Manor soils. They are on higher landscape positions and are better drained than Worsham soils.

Typical pedon of Elioak loam, 2 to 7 percent slopes; in pasture, 3 miles northeast of Charlottesville, 2 miles northeast of the junction of State Highways 631 and 651, 3/4 mile north of the convergence of the North and South Forks of the Rivanna River:

A1—0 to 3 inches; dark brown (10YR 4/3) loam; weak fine granular structure; very friable, nonsticky and nonplastic; many fine roots; few fine flakes of mica; slightly acid; clear smooth boundary.

A2—3 to 8 inches; reddish brown (5YR 5/4) loam; weak fine granular structure; very friable, nonsticky and nonplastic; common fine roots; few fine flakes of mica; 2 percent angular quartz pebbles as much as 2 inches in diameter; medium acid; clear smooth boundary.

B1t—8 to 12 inches; yellowish red (5YR 5/8) silty clay loam; common medium faint red (2.5YR 5/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine roots; thin patchy clay films on faces of peds; few fine flakes of mica; medium acid; clear wavy boundary.

B21t—12 to 17 inches; red (2.5YR 4/6) silty clay; moderate fine subangular blocky structure; friable, sticky and slightly plastic; common fine roots; thin patchy clay films on faces of peds; common fine flakes of mica; medium acid; gradual smooth boundary.

B22t—17 to 32 inches; red (2.5YR 4/6) silty clay; few medium faint yellowish red (5YR 4/6) mottles; strong very fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; thin continuous clay films on faces of peds; common fine flakes of mica; very strongly acid; gradual smooth boundary.

B23t—32 to 39 inches; red (2.5YR 4/6) silty clay loam; common fine distinct yellowish red (5YR 5/8) mottles; moderate medium platy structure parting to moderate fine subangular blocky; friable, slightly sticky and slightly plastic; thin continuous clay films on faces of peds; many fine flakes of mica; 2 percent schist fragments as much as 2 inches in diameter; very strongly acid; gradual smooth boundary.

B3t—39 to 49 inches; red (2.5YR 4/8) silt loam; weak medium platy structure parting to weak very fine subangular blocky; very friable, nonsticky and slightly plastic; thin patchy clay films on faces of peds; many fine mica flakes; very strongly acid; gradual smooth boundary.

C—49 to 72 inches; mottled strong brown (7.5YR 5/8), yellowish red (5YR 5/8), and reddish brown (5YR 5/4) silt loam; massive; very friable, nonsticky and nonplastic; common thick clay flows in relic rock joints; many fine flakes of mica; strongly acid.

The solum is 30 to 50 inches thick. The depth to hard bedrock is more than 60 inches. Angular quartz pebbles, mainly in the surface layer, and schist fragments, throughout the solum, range from 0 to 15 percent. The solum is very strongly acid to medium acid, unless limed.

The A horizon has hue of 5YR through 10YR, value of 3 through 5, and chroma of 2 through 4. Value of 3 is limited to the A1 horizon. It is silt loam, loam, clay loam, or fine sandy loam.

The Bt horizon has hue of 10R through 5YR, value of 4 or 5, and chroma of 4 through 8. The B1t and B2t horizons are silty clay loam, clay loam, silty clay, or clay. The B3t horizon ranges from silt loam to clay loam.

The C horizon has hue of 2.5YR through 7.5YR and value and chroma of 4 through 6, or it is multicolored. It is loam, silt loam, or fine sandy loam and commonly contains more mica than the solum.

Fauquier Series

Soils of the Fauquier series are deep and well drained. They formed in the weathered products of greenstone. These soils are on uplands in the Piedmont. Slope ranges from 2 to 45 percent.

Fauquier soils commonly are near Catoctin, Myersville, and Rabun soils. They have a redder subsoil and more clay than Catoctin and Myersville soils. Fauquier soils are not so deep and have less red colors in the upper part of the solum than Rabun soils.

Typical pedon of Fauquier silt loam, 2 to 7 percent slopes, in pasture, about 9 miles south of Charlottesville, 1 mile southwest of the junction of State Highways 708 and 717, 165 yards southeast of Highway 717.

Ap—0 to 6 inches; reddish brown (5YR 4/4) silt loam; moderate medium granular structure; very friable, slightly sticky and slightly plastic; many fine and common medium roots; 10 percent greenstone fragments less than 1 inch in diameter; slightly acid; abrupt smooth boundary.

B1t—6 to 8 inches; red (2.5YR 4/6) silty clay loam; moderate fine and medium subangular blocky structure; friable, sticky and slightly plastic; common fine and medium roots; thin patchy clay films on faces of peds; 12 percent greenstone fragments less than 2 inches in diameter; slightly acid; abrupt smooth boundary.

B21t—8 to 17 inches; red (2.5YR 4/8) clay; strong fine and medium subangular blocky structure; firm, sticky and plastic; common fine and medium roots; thin continuous clay films on faces of peds; medium acid; clear smooth boundary.

B22t—17 to 24 inches; red (2.5YR 4/6) clay; few fine prominent reddish yellow (7.5YR 6/8) mottles; fine and medium subangular blocky structure; firm, sticky and plastic; common fine and medium roots; thin continuous clay films on faces of peds; medium acid; clear smooth boundary.

B3t—24 to 34 inches; red (2.5YR 4/6) silty clay; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and medium roots; few thin patchy clay films on faces of peds; 3 percent weathered greenstone fragments less than 2 inches in diameter; medium acid; clear wavy boundary.

C1—34 to 50 inches; red (2.5YR 5/8) silt loam; few medium distinct reddish yellow (7.5YR 6/8) and few fine prominent black (10YR 2/1) mottles; massive, rock controlled structure; silty clay loam coating on faces of rock; few fine flakes of mica; 15 percent greenstone fragments less than 3 inches in diameter; medium acid; clear wavy boundary.

C2—50 to 60 inches; red (2.5YR 4/8) saprolite that crushes to silty clay loam; common medium distinct brownish yellow (10YR 6/8) and few fine prominent black (10YR 2/1) mottles; massive, rock controlled structure; firm in place, slightly sticky and slightly plastic; common fine flakes of mica; 10 percent greenstone fragments less than 3 inches in diameter; medium acid.

The solum is 20 to 40 inches thick. The depth to hard rock is more than 40 inches. The solum is medium acid or strongly acid, unless limed. Angular quartz pebbles 1/4 inch to 2 inches in diameter and weathered rock fragments 1 inch to 4 inches in length make up 0 to 15 percent of the soil.

The A horizon has hue of 5YR or 2.5YR, value of 3 or 4, and chroma of 4. It commonly is silt loam or silty clay loam.

The Bt horizon has hue of 2.5YR or 10R, value of 4, and chroma of 6 or 8. It is silty clay loam, silty clay, or clay.

The C horizon is strongly weathered greenstone that crushes easily to silty clay loam or silt loam. It is variable in shades of red, yellow, brown, and black.

Fluvanna Series

Soils of the Fluvanna series are deep and well drained. They formed in the weathered products of mixed basic and acidic crystalline rocks. These soils are on uplands in the Piedmont. Slope ranges from 2 to 15 percent.

Fluvanna soils commonly are near Cullen, Orange, Nason, and Tatum soils. The subsoil of Fluvanna soils is not as red as the subsoil of Cullen and Tatum soils and is not as plastic as the subsoil of Orange soil. Fluvanna soils are better drained than Orange soils. They have more clay and less silt in the solum than Nason soils.

Typical pedon of Fluvanna silt loam, 2 to 7 percent slopes; in pine forest, about 10 miles southeast of Charlottesville, 1.5 miles southwest of Woodridge, about 0.5 mile south of State Highway 708:

O1—1 inch to 0; partly decomposed pine needles and twigs.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A2—2 to 8 inches; brown (7.5YR 5/4) silt loam; moderate fine granular structure; friable; many fine and medium roots; 2 percent angular quartz pebbles; very strongly acid; clear smooth boundary.

B1—8 to 14 inches; strong brown (7.5YR 5/6) clay loam; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium roots; 2 percent angular quartz pebbles; very strongly acid; clear smooth boundary.

B21t—14 to 22 inches; yellowish red (5YR 4/6) clay; strong medium subangular blocky structure; firm, slightly sticky and plastic; common fine and medium roots; many thin clay films on faces of peds; strongly acid; clear smooth boundary.

B22t—22 to 38 inches; yellowish red (5YR 4/6) clay; strong coarse subangular blocky structure; firm, slightly sticky and plastic; common medium roots; many thin and medium clay films on faces of peds; very strongly acid; clear smooth boundary.

B3t—38 to 48 inches; yellowish red (5YR 5/6) silty clay loam; many medium faint brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) mottles; moderate fine subangular blocky structure; friable, slightly sticky and plastic; common thin clay films on faces of peds; 10 percent weathered fragments 1 inch to 3 inches in length; very strongly acid; gradual smooth boundary.

C—48 to 60 inches; multicolored strong brown (7.5YR 5/6), reddish yellow (5YR 6/6), and yellowish brown (10YR 5/6) silt loam; massive; firm; very strongly acid.

The solum is 30 to 55 inches thick. The depth to bedrock is more than 5 feet. The solum is strongly acid or very strongly acid, unless limed. Weathered hornblende gneiss fragments and angular quartz pebbles as much as 3 inches in length make up to 10 percent of the solum and up to 30 percent of the substratum.

The A horizon has hue of 7.5YR through 2.5Y, value of 3 through 6, and chroma of 2 through 6. It is fine sandy loam, loam, or silt loam.

The B horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 4 through 8. Mottling and streaks of high chroma are common in the lower part of the B horizon. The B2 horizon is clay loam, silty clay loam, silty clay, or clay.

The C horizon is strongly weathered rock that crushes easily to silt loam, clay loam, or silty clay loam and is underlain by partly weathered hornblende gneiss or similar kinds of rock.

Glenelg Series

Soils of the Glenelg series are deep and well drained. They formed in the weathered products of quartz mica schist. These soils are in the Piedmont. Slope ranges from 2 to 45 percent.

Glenelg soils commonly are near Albemarle, Culpeper, Elioak, and Hazel soils. Glenelg soils have more mica and silt throughout than Albemarle soils. They are not so red or do not have so much clay in the subsoil as Culpeper and Elioak soils. Glenelg soils have more clay in the subsoil than Hazel soils.

Typical pedon of Glenelg loam, 7 to 15 percent slopes; in mixed hardwood forest, about 10 miles northeast of Charlottesville, 1 mile north of the junction of State Highways 600 and 784, 1/4 mile west of 784 and about 200 yards south of farm road:

O1—2 inches to 1/2 inch; undecomposed forest litter of leaves and twigs.

O2—1/2 inch to 0; very dark grayish brown (10YR 3/2) partially decomposed leaf litter; abrupt smooth boundary.

A1—0 to 2 inches; dark brown (10YR 3/3) loam; weak fine granular structure; very friable, nonsticky and slightly plastic; many fine and medium and few large roots; 5 percent angular quartz pebbles; strongly acid; abrupt smooth boundary.

A2—2 to 8 inches; dark yellowish brown (10YR 4/4) loam; moderate coarse granular structure; friable, nonsticky and slightly plastic; many fine and medium and few large roots; 5 percent angular quartz gravel; strongly acid; abrupt smooth boundary.

B21t—8 to 12 inches; strong brown (7.5YR 5/6) silty clay loam; few medium distinct yellowish brown (10YR 5/4) mottles; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium and few large roots; few thin clay films on faces of peds; common fine flakes of mica; very strongly acid; clear smooth boundary.

B22t—12 to 24 inches; yellowish red (5YR 4/6) silty clay loam; moderate fine and medium subangular blocky structure; friable, slightly sticky and plastic; common fine and medium and few large roots; common medium clay films on faces of peds; common fine flakes of mica; 2 percent weathered schist fragments as much as 1 inch in length; very strongly acid; clear smooth boundary.

B3t—24 to 28 inches; reddish brown (5YR 5/4) loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium and few large roots; thick patchy clay films on faces of peds; common fine flakes of mica; very strongly acid; clear wavy boundary.

C1—28 to 40 inches; yellowish brown (10YR 5/6), yellowish red (5YR 4/6), and strong brown (7.5YR 5/6) saprolite that crushes to loam; massive, rock controlled structure; firm in place, slightly sticky and nonplastic; few fine and medium roots; few 1/4 inch seams filled with red (2.5YR 4/8) clay loam; many fine flakes of mica; strongly acid; gradual smooth boundary.

C2—40 to 80 inches; brown (7.5Y 5/4) saprolite that crushes to loam; massive, rock controlled structure;

firm in place, nonsticky and nonplastic; few fine roots; many fine flakes of mica; strongly acid.

The solum is 18 to 30 inches thick. The depth to hard bedrock is more than 5 feet. The solum is strongly acid or very strongly acid, unless limed. Quartz or mica schist ranging from pebbles to stones makes up 0 to 15 percent of this soil.

The A horizon has hue of 7.5YR or 10YR, value of 3 through 5, and chroma of 1 through 4.

The B horizon has hue of 5YR through 10YR, value of 4 or 5, and chroma of 4 through 8. It is loam, silt loam, or silty clay loam.

The C horizon commonly is multicolored in hue of 10YR or 7.5YR, value of 4 through 6, and chroma of 2 through 8. It is saprolite that crushes to silt loam or loam.

Hartleton Series

Soils of the Hartleton series are deep and well drained. They formed in the weathered products of phyllite and shale. These soils are on the Blue Ridge. Slope ranges from about 7 to 60 percent. The Hartleton soils in this survey area are only mapped in a complex with Cataska soils.

Hartleton soils commonly are near Cataska, Catoctin, Myersville, and Tusquitee soils. Hartleton soils are deeper to bedrock than Cataska soils. They have a lower percent base saturation than Catoctin or Myersville soils. Hartleton soils have more coarse fragments and are shallower to bedrock than Tusquitee soils.

Typical pedon of Hartleton channery loam in an area of Hartleton-Cataska very stony loams, 7 to 15 percent slopes; in hardwood forest, about 16 miles east-northeast of Charlottesville, 0.3 mile south of milepost 94 at the Turk Branch fire trail, 35 yards east of Skyline Drive:

A1—0 to 7 inches; yellowish brown (10YR 5/6) channery loam; weak fine granular structure; very friable; many fine and medium roots; 30 percent phyllite and shale fragments as much as 3 inches in length; very strongly acid; gradual smooth boundary.

B21—7 to 11 inches; yellowish brown (10YR 5/6) very channery loam; weak fine subangular blocky structure; friable; many fine and medium roots; 35 percent phyllite and shale fragments as much as 4 inches in length; very strongly acid; gradual smooth boundary.

B22t—11 to 24 inches; brownish yellow (10YR 6/6) very channery loam; moderate medium subangular blocky structure; friable; many fine and medium roots; common thin clay films on faces of peds; 40 percent phyllite and shale fragments as much as 4 inches in length; very strongly acid; gradual smooth boundary.

B3t—24 to 32 inches; brownish yellow (10YR 6/6) channery loam; weak medium subangular blocky structure; friable; few thin clay films on faces of peds; 30 percent phyllite and shale fragments as much as 5 inches in length; very strongly acid; gradual wavy boundary.

C—32 to 44 inches; brownish yellow (10YR 6/6) extremely channery loam; massive; friable; 65 percent phyllite and shale fragments as much as 6 inches in length; very strongly acid; gradual wavy boundary.

R—44 inches; fractured, hard phyllite and shale.

The solum is 30 to 40 inches thick. The depth to bedrock ranges from 40 to 60 inches. Shale and phyllite fragments 1/2 inch to 6 inches in length make up 15 to 40 percent of the A horizon, 35 to 60 percent of the B horizon, and 50 to 90 percent of the C horizon. The soil is strongly acid or very strongly acid throughout, unless limed.

The A horizon has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 2 through 6.

The B horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 or 6. It is channery or very channery analogues of silt loam, loam, clay loam, or silty clay loam.

The C horizon has colors similar to those of the B horizon. It is very channery or extremely channery analogues of silt loam or loam.

Hayesville Series

Soils of the Hayesville series are deep and well drained. They formed in the weathered products of granite, granite gneiss, and granodiorite. These soils are on uplands in the Piedmont. Slope ranges from 2 to 45 percent.

Hayesville soils commonly are near Ashe, Braddock, Chester, and Cullen soils. Hayesville soils have a redder subsoil and contain more clay than Ashe and Chester soils. They have oxidic mineralogy, and Braddock soils have mixed mineralogy. Hayesville soils are mesic, and Cullen soils are thermic.

Typical pedon of Hayesville loam, 2 to 7 percent slopes; in woodland, about 9 miles northwest of Charlottesville, 3/4 mile east of Free Union, and 100 yards south of State Highway 665:

O1—1 inch to 0; partly decomposed leaves and other organic matter.

A1—0 to 2 inches; brown (7.5YR 4/4) loam; weak fine granular structure; very friable, nonsticky and nonplastic; many fine and medium roots; strongly acid; clear smooth boundary.

A2—2 to 7 inches; strong brown (7.5YR 5/6) loam; moderate fine granular structure; very friable, nonsticky and nonplastic; many fine and medium roots; strongly acid; clear smooth boundary.

B1t—7 to 11 inches; yellowish red (5YR 4/8) clay loam; weak fine and medium subangular blocky structure;

friable, slightly sticky and slightly plastic; common fine and medium roots; thin very patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B21t—11 to 29 inches; red (2.5YR 4/8) clay; moderate medium and fine subangular blocky structure; friable, slightly sticky and plastic; few fine and medium roots; thin continuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

B22t—29 to 40 inches; red (2.5YR 4/6) clay; strong medium and fine subangular blocky structure; friable, slightly sticky and plastic; few fine and medium roots; thin continuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

B3t—40 to 58 inches; red (2.5YR 4/8) clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable, slightly sticky and plastic; thin patchy clay films on vertical faces of peds; common fine flakes of mica; 2 percent weathered granite gneiss fragments as much as 2 inches in diameter; strongly acid; gradual smooth boundary.

C1—58 to 67 inches; yellowish red (5YR 4/8) sandy clay loam; common fine distinct reddish yellow (7.5YR 6/8) mottles; massive; very friable, nonsticky and nonplastic; common fine flakes of mica; 2 percent weathered granite gneiss fragments as much as 2 inches in diameter; strongly acid; clear smooth boundary.

C2—67 to 83 inches; multicolored red (2.5YR 4/8) and yellowish red (5YR 4/8) granite saprolite that crushes to sandy clay loam; massive; very friable, nonsticky and nonplastic; 80 percent strongly weathered granite gneiss; common fine flakes of mica; strongly acid.

The solum is 40 to 60 inches thick. The depth to bedrock is more than 5 feet. The solum is strongly acid or very strongly acid, unless limed. It is 0 to 15 percent angular pebbles 1/4 inch to 3 inches in diameter.

The A horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 through 6. It is fine sandy loam, loam, or clay loam.

The Bt horizon has hue of 5YR through 10R, value of 4 or 5, and chroma of 6 or 8. The B2 horizon is clay loam or clay. The B1 and B3 horizons are sandy clay loam or clay loam.

The C horizon has colors and textures similar to those of the B3 horizon, or it is multicolored. It is weathered granite, granite gneiss, or granodiorite that crushes easily to loam, sandy loam, or sandy clay loam.

Hazel Series

Soils of the Hazel series are moderately deep and excessively drained. They formed in the weathered products of graywacke sandstone and mica schist. These soils are on uplands in the Piedmont. Slope ranges from 7 to 45 percent.

Hazel soils commonly are near Albemarle, Culpeper, Elioak, and Glenelg soils. Hazel soils do not have an argillic horizon that these other soils have. Also, they have less clay in the subsoil than these soils.

Typical pedon of Hazel loam, 25 to 45 percent slopes; in pasture, about 3 miles northeast of Charlottesville, 2 miles northeast of the junction of State Highways 631 and 651, about 1/2 mile north of the confluence of the North and South Forks of the Rivanna River:

A1—0 to 2 inches; dark brown (10YR 3/3) loam; weak fine granular structure; very friable; many fine roots; common fine flakes of mica; very strongly acid; clear smooth boundary.

A2—2 to 10 inches; brown (7.5YR 4/4) loam; weak fine granular structure; very friable; common fine roots; few fine flakes of mica; 1 percent angular quartz pebbles; very strongly acid; clear smooth boundary.

B—10 to 20 inches; brown (7.5YR 4/4) loam; weak fine subangular blocky structure; friable, nonsticky and nonplastic; few fine roots; common fine flakes of mica; 10 percent angular quartz pebbles; very strongly acid; gradual smooth boundary.

C—20 to 30 inches; strong brown (7.5YR 4/6) channery loam; few fine faint yellowish red (5YR 5/8) mottles; massive; very friable; many fine flakes of mica; 25 percent sandstone fragments as much as 5 inches in length; very strongly acid; abrupt wavy boundary.

R—30 inches; hard, fine grained graywacke sandstone.

The solum is 15 to 25 inches thick. Depth to bedrock ranges from 20 to 40 inches. Coarse fragments range from 0 to 34 percent in the solum and 20 to 50 percent in the C horizon. The soil is strongly acid or very strongly acid throughout, unless limed.

The A1 horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 through 4. The A2 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4. It is loam, silt loam, or channery analogues of these textures.

The B horizon has hue of 7.5YR or 10YR, value of 4 or 5 and chroma of 4 through 8. It is loam, silt loam, or channery analogues of these textures.

The C horizon has colors similar to those of the B horizon. In some pedons it is multicolored. It is channery or very channery analogues of loam or silt loam.

Hiwassee Series

Soils of the Hiwassee series are deep and well drained. They formed in old alluvium. These soils are in the Piedmont. Slope ranges from 2 to 25 percent.

Hiwassee soils commonly are near Dogue, Masada, McQueen, and Turbeville soils. Hiwassee soils have darker red colors throughout than these soils. Hiwassee soils are better drained than Dogue soils.

Typical pedon of Hiwassee loam, 2 to 7 percent slopes; in a field, about 1 3/4 miles northeast of Charlottesville, 1/2 mile northwest of the confluence of the North Fork and the South Fork of the Rivanna River, and 275 yards east of the South Fork of the Rivanna River:

Ap—0 to 8 inches; dark reddish brown (5YR 3/4) loam; moderate fine granular structure; very friable, slightly sticky and slightly plastic; medium acid; clear smooth boundary.

B1—8 to 13 inches; dark red (2.5YR 3/6) clay; moderate medium subangular blocky structure; firm, sticky and plastic; many fine roots; 2 percent pebbles as much as 1 inch in diameter; medium acid; gradual wavy boundary.

B21t—13 to 36 inches; dark red (2.5YR 3/6) clay; strong medium subangular blocky structure; firm, sticky and plastic; few fine roots; common thin continuous clay films on faces of peds; 2 percent pebbles up to 1 inch in diameter; medium acid; gradual smooth boundary.

B22t—36 to 47 inches; dark red (2.5YR 3/6) clay; strong fine subangular blocky structure; firm, sticky and plastic; few fine roots; many thin continuous clay films on faces of peds; 2 percent pebbles as much as 1 inch in diameter; medium acid; gradual smooth boundary.

IIB23t—47 to 64 inches; dark red (2.5YR 3/6) silty clay loam; few fine prominent brownish yellow (10YR 6/8) mottles; weak fine subangular blocky structure; firm, slightly sticky and slightly plastic; few thin continuous clay films on faces of peds; 2 percent pebbles as much as 2 inches in diameter; strongly acid.

The solum is more than 40 inches thick. The depth to bedrock is more than 5 feet. Stone lines of gravel and cobbles are in some pedons. The solum is 0 to 15 percent gravel and cobbles. The soil ranges from slightly acid to very strongly acid throughout, unless limed.

The A horizon has hue of 5YR, value of 3, and chroma of 3 or 4. It is loam and in eroded areas is clay loam.

The Bt horizon has hue of 10R or 2.5YR, value of 3, and chroma of 4 or 6. It is clay, clay loam, or silty clay loam.

Klinesville Series

Soils of the Klinesville series are shallow and well drained. They formed in material weathered from Triassic red shale and sandstone. These soils are on uplands in the Piedmont. Slope ranges from 2 to 45 percent.

Klinesville soils commonly are near Manassas, Penn, Rapidan, and Totier soils. Klinesville soils are shallower to bedrock and have more coarse fragments throughout than these soils.

Typical pedon of Klinesville channery silt loam, 7 to 15 percent slopes; in pasture, about 16 miles south of Charlottesville, 0.5 mile southeast of the junction of State Highways 6 and 626, about 100 yards north of a stream, 150 yards south of an old barn:

Ap—0 to 4 inches; reddish brown (2.5YR 4/4) channery silt loam; moderate fine and medium granular structure; very friable, slightly sticky and nonplastic; many very fine and few medium roots; 20 percent shale fragments less than 1/2 inch in length; few fine mica flakes; medium acid; gradual smooth boundary.

B—4 to 10 inches; dark red (2.5YR 3/6) very channery silty clay loam; weak fine and very fine subangular blocky structure; friable, slightly sticky and nonplastic; common very fine and few medium roots; 40 percent shale fragments less than 2 inches in length coated with silt; strongly acid; abrupt wavy boundary.

C—10 to 14 inches; reddish brown (2.5YR 4/4) very channery silt loam; massive; very friable, slightly sticky and nonplastic; few very fine roots on faces of shale; 60 percent oriented shale; very strongly acid; gradual wavy boundary.

R—14 inches; oriented red (2.5YR 4/6) shale bedrock; rippable.

The thickness of the solum coincides with the depth to bedrock and ranges from 10 to 20 inches. Coarse fragments of shale and sandstone make up 20 to 30 percent of the A horizon, 20 to 60 percent of the B horizon, and 50 to 90 percent of the C horizon. The soil is medium acid to very strongly acid, unless limed.

The A horizon has hue of 10R through 5YR, value of 3 or 4, and chroma of 3 or 4.

The B horizon has hue of 10R through 5YR, value of 3 or 4, and chroma of 3 through 6. It is channery or very channery silt loam.

The C or Cr horizon has colors similar to those of the B1 horizon. It is very shaly or extremely shaly analogues of silt loam or of saprolite that crushes to silt loam.

Lew Series

Soils of the Lew series are deep and well drained. They formed in the weathered products of greenstone colluvium. These soils are in the Blue Ridge. Slope ranges from 7 to 25 percent.

Lew soils commonly are near Catoctin, Myersville, and Unison soils. Lew soils are deeper to bedrock than Catoctin soils. They have more coarse fragments in the subsoil than Myersville and Unison soils. Lew soils contain less clay in the subsoil than Unison soils.

Typical pedon of Lew channery silt loam in an area of Lew extremely stony silt loam, 7 to 15 percent slopes; in hardwood forest, about 16 miles west of Charlottesville, 1 3/4 miles up the South Fork of the Moormans River from the Charlottesville Reservoir, 15 yards east of the fire trail:

A1—0 to 3 inches; dark brown (7.5YR 3/2) channery silt loam; weak fine granular structure; friable; many fine and medium roots; 30 percent flat greenstone fragments as much as 3 inches in length; strongly acid; gradual smooth boundary.

A2—3 to 7 inches; brown (7.5YR 4/4) channery silt loam; weak fine granular structure; friable; many fine and medium roots; 30 percent flat greenstone fragments as much as 3 inches in length; strongly acid; gradual smooth boundary.

B21t—7 to 15 inches; yellowish red (5YR 5/8) channery silty clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common medium roots; few thin patchy clay films on faces of peds; 30 percent flat greenstone fragments as much as 3 inches in length; strongly acid; gradual smooth boundary.

B22t—15 to 30 inches; yellowish red (5YR 4/6) very channery silty clay loam; moderate medium subangular blocky structure; friable, slightly sticky and nonplastic; common medium roots; thin patchy clay films on faces of peds; 50 percent flat greenstone fragments as much as 3 inches in length; very strongly acid; gradual smooth boundary.

IIB3t—30 to 60 inches; strong brown (7.5YR 5/6) very channery silty clay loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; thin very patchy clay films on faces of peds to a depth of 45 inches; 70 percent flat greenstone fragments as much as 6 inches in length; very strongly acid.

The solum is 40 to 60 inches thick. The depth to bedrock is more than 5 feet. Coarse fragments of crystalline rock make up 15 to 35 percent of the A horizon and 35 to 70 percent of the B horizon. The soil is very strongly acid or strongly acid, unless limed.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 through 4.

The B21t horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 through 8. The B22t and IIB3t horizons have hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 or 8. The Bt horizon is channery or very channery clay loam or silty clay loam.

Lignum Series

Soils of the Lignum series are deep and somewhat poorly drained to moderately well drained. They formed in the weathered products of sericitic schist. These soils are on the uplands in the Piedmont. Slope commonly is 2 to 7 percent.

Lignum soils commonly are near Manteo, Nason, Tatum, and Worsham soils. Lignum soils are deeper to bedrock than Manteo soils. They are more poorly drained than Nason and Tatum soils. Lignum soils are not so poorly drained as Worsham soils.

Typical pedon of Lignum silt loam, 2 to 7 percent slopes; in mixed hardwood forest, about 10 miles east of Charlottesville, 0.6 mile northeast of the junction of State Highways 686 and 600, 0.2 mile east of 686:

O1—2 inches to 0; partially decomposed leaves, twigs, and other forest litter.

A1—0 to 2 inches; pale brown (10YR 6/3) silt loam; weak very fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2—2 to 9 inches; very pale brown (10YR 7/4) silt loam; moderate fine granular structure; very friable; many fine roots; 5 percent angular quartz pebbles 1/4 to 1 inch in diameter; strongly acid; gradual smooth boundary.

B1—9 to 15 inches; light yellowish brown (10YR 6/4) silty clay loam; few fine faint yellowish brown (10YR 5/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common medium roots; 5 percent angular quartz pebbles 1/4 inch to 2 inches in diameter; very strongly acid; gradual smooth boundary.

B21t—15 to 25 inches; brownish yellow (10YR 6/6) silty clay loam; few fine distinct yellowish red (5YR 5/6) and common medium distinct light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; friable, slightly sticky and plastic; common medium roots; few thin clay films on faces of peds; 2 percent angular quartz pebbles 1/4 inch to 2 inches in diameter; strongly acid; gradual smooth boundary.

B22t—25 to 35 inches; brownish yellow (10YR 6/8) silty clay; few medium prominent light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; few medium roots; common thin clay films on faces of peds; strongly acid; gradual wavy boundary.

B3t—35 to 38 inches; yellowish brown (10YR 5/6) silty clay loam; common medium distinct gray (10YR 6/1) and common medium faint strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few thin clay films on faces of peds; 2 percent schist fragments 1/4 inch to 2 inches in length; very strongly acid; gradual wavy boundary.

C—38 to 51 inches; pale yellow (5Y 7/3) channery silt loam; many coarse faint light gray (5Y 7/1) mottles; massive, rock controlled structure; friable; 30

percent schist fragments 1/4 inch to 2 inches in length; very strongly acid; gradual wavy boundary.

Cr—51 to 58 inches; multicolored brown, yellow, black, and gray schist saprolite that crushes to silt loam; massive, rock controlled structure; firm in place; 50 percent hard schist fragments; very strongly acid; gradual wavy boundary.

R—58 inches; hard schist bedrock; rippable.

The solum is 20 to 40 inches thick. Depth to bedrock is 40 inches or more. Coarse fragments range from 0 to 15 percent in the solum and from 20 to 50 percent in the substratum. The solum is strongly acid or very strongly acid throughout, unless limed.

The A horizon has hue of 2.5Y or 10YR, value of 5 through 7, and chroma of 2 through 4.

The B horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 through 8. It is silty clay loam or clay.

The C horizon is mostly weathered schist in shades of brown, yellow, gray, white, and black. The schist crushes to silt loam and the channery or very channery analogues of silt loam.

Louisburg Series

Soils of the Louisburg series are deep and well drained to excessively drained. They formed in the weathered products from granite and gneiss. These soils are on uplands in the Piedmont. Slope ranges from 7 to 45 percent.

Louisburg soils commonly are near Albemarle, Culpeper, Hazel, Pacolet, and Wedowee soils. Louisburg soils have less clay in the subsoil than these soils, except Hazel soils. They are deeper to bedrock than Hazel soils.

Typical pedon of Louisburg sandy loam, 15 to 25 percent slopes; in mixed hardwood and pine forest, 4.5 miles north of Charlottesville, about .25 mile south of State Highway 606, about 1/2 mile east-southeast of the junction of State Highways 743 and 606:

O1—1 inch to 0; partly decomposed leaves and twigs.

A1—0 to 5 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; few coarse and many fine and medium roots; 5 percent angular quartz pebbles 1/4 inch to 2 inches in diameter; strongly acid; clear smooth boundary.

B1—5 to 11 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine and medium subangular blocky structure; very friable; common fine and medium roots; 10 percent angular quartz pebbles 1/4 inch to 2 inches in diameter; strongly acid; clear smooth boundary.

B21—11 to 15 inches; yellowish brown (10YR 5/6) sandy loam; weak fine and medium subangular blocky structure; friable, slightly sticky and nonplastic; common fine roots; sand grains coated and bridged with clay; 15 percent angular quartz pebbles 1/4 inch to 2 inches in diameter; few fine flakes of mica; very strongly acid; clear smooth boundary.

B22—15 to 23 inches; yellowish brown (10YR 5/6) sandy loam; moderate fine subangular blocky structure; friable, slightly sticky and nonplastic; few fine and very fine roots; sand grains coated and bridged with clay; common fine flakes of mica; thin lenses of sandy clay less than 20 percent of horizon thickness; very strongly acid; gradual wavy boundary.

C1—23 to 60 inches; multicolored brownish yellow (10YR 6/6), yellow (10YR 7/8), and dark yellowish brown (10YR 4/6) granite saprolite that crushes to sandy loam; massive; very firm; few very fine roots; many fine and medium flakes of mica; very strongly acid.

The solum is about 20 to 40 inches thick. The depth to hard bedrock is more than 48 inches. The soil is strongly acid or very strongly acid, unless limed. Content of angular quartz pebbles and partly weathered granite gneiss fragments ranges from 0 to 15 percent in the A and B horizons. Fine mica flakes commonly are in the subsoil and substratum.

The A horizon has hue of 10YR through 2.5Y, value of 3 through 5, and chroma of 2 through 4.

The B horizon has hue of 10YR through 2.5Y, value of 4 through 6, and chroma of 4 through 8. A discontinuous argillic horizon has colors similar to those of the B horizon and includes strong brown. It is sandy loam or sandy clay loam.

The C horizon is strongly weathered granite or arkosic sandstone. It is multicolored in shades of yellow, brown, white, and black. It is sandy loam or loamy sand.

Manassas Series

Soils of the Manassas series are deep and well drained to moderately well drained. They formed in local alluvium and colluvium washed from the surrounding uplands. These soils are on uplands in the Piedmont. Slope is 2 to 7 percent.

Manassas soils commonly are near Bermudian, Creedmoor, Klinesville, Penn, and Totier soils. Manassas soils are not so well drained as Bermudian, Klinesville, Penn, and Totier soils. They are better drained than Creedmoor soils.

Typical pedon of Manassas silt loam, 2 to 7 percent slopes; in pasture, about 18 miles south of Charlottesville, 1 mile northwest of Tapscott, 330 yards east of State Highway 627:

Ap1—0 to 4 inches; reddish brown (5YR 4/4) silt loam; weak fine granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

Ap2—4 to 10 inches; reddish brown (5YR 4/4) silt loam; moderate fine granular structure; friable, slightly sticky and slightly plastic; common fine and medium roots; 5 percent angular rock fragments as much as 1 inch in diameter; slightly acid; abrupt smooth boundary.

A3—10 to 18 inches; reddish brown (5YR 4/3) silt loam; moderate fine granular structure; friable, slightly sticky and slightly plastic; few fine and common medium roots; 2 percent quartz fragments as much as 1 inch in diameter; medium acid; abrupt smooth boundary.

B21t—18 to 26 inches; yellowish red (5YR 4/6) clay loam; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common medium roots; common thin clay films on faces of peds; 2 percent quartz fragments as much as 1 inch in diameter; medium acid; abrupt smooth boundary.

B22t—26 to 40 inches; red (2.5YR 4/6) silty clay loam; strong fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few thin clay films on faces of peds; medium acid; clear smooth boundary.

IIB23t—40 to 59 inches; yellowish red (5YR 5/6) shaly silty clay; few fine distinct yellowish brown (10YR 5/8) mottles; weak coarse angular blocky structure; firm, sticky and plastic; few thin clay films on faces of peds; 15 percent weathered shale fragments less than 1 inch in length; medium acid; abrupt smooth boundary.

IIB3t—59 to 64 inches; red (2.5YR 4/6), yellowish brown (10YR 5/8), and light olive gray (5Y 6/2) shaly silty clay; weak fine subangular blocky structure; firm, sticky and plastic; few thin clay films on faces of peds; 15 percent weathered shale fragments less than 1 inch in length; medium acid.

The solum is 30 to 60 inches thick. Depth to bedrock is more than 60 inches. The soil is very strongly acid to medium acid, unless limed. Coarse fragments range from 0 to 15 percent throughout the upper part of the solum and from 15 to 60 percent in the lower part of the solum and in the substratum.

The A horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 3 through 6. It is silt loam or loam.

The B horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 3 through 6. The Bt horizon is silt loam, silty clay loam, or clay loam. The IIBt horizon is clay or silty clay or the shaly or very shaly analogues of these textures.

The C horizon, if present, is weathered shale, sandstone, or conglomerate. It is multicolored in shades of red, brown, yellow, pink, and gray. The C horizon is silt loam or loam or the shaly or very shaly analogues of these textures.

Manor Series

Soils of the Manor series are deep and well drained to somewhat excessively drained. They formed in the weathered products of quartz mica schist. These soils are on uplands in the Piedmont. Slope ranges from 15 to 45 percent.

Manor soils commonly are near Elioak, Glenelg, and Hazel soils. Manor soils have less clay in the subsoil than Elioak and Glenelg soils. They are deeper to bedrock than Hazel soils.

Typical pedon of Manor loam, 15 to 25 percent slopes; in hardwood forest, about 3 miles southeast of Charlottesville, 3/4 mile south of the junction of State Highways 631 and 731, and 275 yards west of 631:

O1—2 inches to 0; partially decayed leaves and twigs.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) loam; weak fine and very fine granular structure; very friable; many fine roots; few fine flakes of mica; strongly acid; clear smooth boundary.

A2—2 to 8 inches; brown (7.5YR 4/4) loam; moderate fine granular structure; very friable, slightly sticky and nonplastic; many fine roots; many fine flakes of mica; strongly acid; clear smooth boundary.

B—8 to 18 inches; yellowish red (5YR 5/6) loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; common fine roots; many fine flakes of mica; 5 percent weathered schist fragments as much as 3 inches in length; strongly acid; gradual smooth boundary.

C1—18 to 40 inches; strong brown (7.5YR 5/8) loam; streaked with pale brown (10YR 6/3) and reddish yellow (5YR 6/6); massive; friable; common fine roots; many fine flakes of mica; 10 percent weathered schist fragments as much as 3 inches in length; strongly acid; gradual smooth boundary.

C2—40 to 62 inches; multicolored yellowish brown (10YR 5/6), yellow (10YR 7/6), and strong brown (7.5YR 5/8) loam; massive; friable; many fine flakes of mica; 12 percent weathered schist fragments as much as 3 inches in length; very strongly acid.

The solum ranges from 15 to 24 inches in thickness. The depth to bedrock is more than 5 feet. Coarse fragments of schist or quartzite range from 0 to 15 percent throughout. The soil is strongly acid or very strongly acid throughout, unless limed.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 through 6.

The B horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 through 8.

The C horizon has hue of 7.5YR or 10YR, value of 4 through 8, and chroma of 3 through 8. It is sandy loam or loam.

Manteo Series

Soils of the Manteo series are shallow and somewhat excessively drained. They formed in the weathered products of sericitic schist. These soils are on uplands in the Piedmont. Slope ranges from 2 to 45 percent.

Manteo soils commonly are near Lignum, Nason, and Tatum soils. Manteo soils have less clay throughout and are shallower to bedrock than these soils.

Typical pedon of Manteo channery silt loam, 7 to 15 percent slopes; in hardwood forest, about 6 miles southeast of Charlottesville, 1 mile north of intersection of State Highways 53 and 729, and 100 yards east of 729.

O2—2 inches to 0; partially decomposed leaves, twigs, and other organic material.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) channery silt loam; weak fine granular structure; very friable, slightly sticky and nonplastic; many fine roots; 20 percent angular schist fragments as much as 2 inches in length; very strongly acid; clear smooth boundary.

A2—2 to 6 inches; brown (10YR 5/3) channery silt loam; weak fine granular structure; very friable, slightly sticky and nonplastic; many roots; 30 percent angular schist fragments as much as 2 inches in length; very strongly acid; clear smooth boundary.

B—6 to 14 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; 50 percent angular schist fragments as much as 2 inches in length; very strongly acid; gradual wavy boundary.

C—14 to 18 inches; brownish yellow (10YR 6/6) extremely channery loam; massive; friable; 75 percent schist fragments as much as 6 inches in length; extremely acid; clear irregular boundary.

R—18 inches; fragmented hard schist rock.

The solum is 10 to 20 inches thick. The depth to hard bedrock ranges from 15 to 20 inches. Angular quartz pebbles and fragments of schist range from 15 to 80 percent in the A and B horizons and from 35 to 95 percent in the C horizon. The soil is very strongly acid or extremely acid, unless limed.

The A1 horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3. The A2 horizon has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 2 through 4.

The Ap horizon has hue of 10YR, value of 5 or 6, and chroma of 2 through 4. It is channery or very channery silt loam.

The B horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 4 through 8. It is channery, very channery, or extremely channery analogues of silt loam or clay loam.

The C horizon is mostly schist fragments. It is very channery or extremely channery analogues of silt loam or loam.

Masada Series

Soils of the Masada series are deep and well drained. They formed in old alluvium that is at a higher elevation and commonly some distance from the present flood plains. They are on uplands in the Piedmont. Slopes are 2 to 15 percent.

Masada soils commonly are near McQueen, Nason, and Turbeville soils. They are less than 30 percent silt, and McQueen soils are more than 30 percent silt. Masada soils have a thicker solum than Nason soils. They are not so red in the subsoil as Turbeville soils.

Typical pedon of Masada loam, 2 to 7 percent slopes; in a field, about 19 miles south-southwest of Charlottesville, 1/4 mile west of the railroad crossing at Warren and 40 yards north of a railroad:

Ap—0 to 7 inches; dark brown (7.5YR 4/4) loam; weak fine granular structure; very friable; many fine roots; slightly acid; clear wavy boundary.

B1t—7 to 14 inches; reddish brown (5YR 4/4) clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; many fine roots; few thin clay films on faces of peds; strongly acid; clear wavy boundary.

B21t—14 to 19 inches; yellowish red (5YR 4/6) clay; moderate fine subangular blocky structure; firm, sticky and plastic; common fine roots; common thin clay films on faces of peds; few black manganese stains; strongly acid; clear wavy boundary.

B22t—19 to 33 inches; yellowish red (5YR 4/8) clay; moderate fine subangular blocky structure; firm, sticky and plastic; common fine roots; common thin clay films on faces of peds; few black manganese stains; strongly acid; clear wavy boundary.

B23t—33 to 62 inches; yellowish red (5YR 4/8) clay loam; weak very fine subangular blocky structure; slightly sticky and slightly plastic; few fine roots; 2 percent quartz pebbles 1/4 to 1/2 inch in diameter; strongly acid.

The solum is more than 40 inches thick. The depth to bedrock is more than 6 feet. The soil is strongly acid or very strongly acid, unless limed. Quartz pebbles 1/4 inch to 2 inches in diameter make up 0 to 30 percent of the solum.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 through 6.

The B1 horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 4 through 8. The B2t horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 6 or 8. It is clay loam or clay.

The B23t horizon has high chroma mottles in some pedons.

The C horizon commonly is multicolored and ranges from sandy loam to clay loam. It is gravelly or very gravelly in some pedons.

Mayodan Series

Soils of the Mayodan series are deep and well drained. They formed in the weathered products of Triassic sandstone and red shale. These soils are on uplands in the Piedmont. Slope commonly is 2 to 15 percent.

Mayodan soils commonly are near Creedmoor, Manassas, Penn, and Totier soils. They are better drained than Creedmoor and Manassas soils. Mayodan soils have more clay in the subsoil than Manassas and Penn soils and have a thicker solum than Penn soils. They are not so red in the subsoil as Totier soils.

Typical pedon of Mayodan loam, 2 to 7 percent slopes; in mixed hardwoods, about 13 miles south of Charlottesville, 1.5 miles north of the junction of State Highways 795 and 712, and 350 yards west of 795:

O1—2 inches to 1 inch; undecomposed forest litter of sticks, twigs, and leaves.

O2—1 inch to 0; black (10YR 2/1) partly decomposed hardwood leaves and twigs; abrupt smooth boundary.

A1—0 to 3 inches; brown (10YR 4/3) loam; weak very fine granular structure; very friable; many fine and medium roots; common fine and very fine discontinuous pores; very strongly acid; abrupt smooth boundary.

A2—3 to 10 inches; yellowish brown (10YR 5/4) loam; weak fine granular structure; very friable; many fine and medium roots; common fine and very fine discontinuous pores; strongly acid; clear smooth boundary.

B1—10 to 17 inches; yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable, slightly sticky and nonplastic; common fine and medium roots; strongly acid; gradual smooth boundary.

B21t—17 to 28 inches; strong brown (7.5YR 5/8) clay loam; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; thin continuous clay films on faces of peds; strongly acid; clear wavy boundary.

B22t—28 to 44 inches; strong brown (7.5YR 5/8) silty clay; common medium distinct yellowish brown (10YR 5/4) and common medium faint red (2.5YR 5/8) mottles; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; friable, slightly sticky and slightly plastic; few fine roots; thin continuous clay films on faces of peds; very strongly acid; clear wavy boundary.

B3t—44 to 53 inches; strong brown (7.5YR 5/8) shaly silty clay loam; common medium faint brownish yellow (10YR 6/8) and yellowish red (5YR 5/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; thin discontinuous clay films on faces of peds; 30 percent shale fragments as much as 1 inch in length; strongly acid; clear wavy boundary.

Cr—53 to 60 inches; red (2.5YR 4/6) weathered shale, difficult to dig with spade; reddish yellow (5YR 6/6) silty clay loam coatings on shale fractures; gradual wavy boundary.

R—60 inches; hard shale bedrock.

The solum is 40 to 60 inches thick. The depth to bedrock is 60 inches or more. The soil is strongly acid or very strongly acid, unless limed. Coarse fragments range from 0 to 10 percent in the A horizon and from 0 to 30 percent in the subsoil.

The A horizon has hue of 10YR or 2.5Y, value of 4 through 6, and chroma of 3 through 4.

The B1 horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 through 8. It is loam, silt loam, or clay loam.

The B2 horizon has hue of 2.5YR through 1.5YR, value of 4 or 5, and chroma of 6 through 8. It is clay loam, clay, or silty clay.

The B3 horizon has colors similar to those of the B2 horizon. It is clay loam, silty clay loam, or the shaly analogues of these textures.

The C horizon is weathered shale with some sandstone.

McQueen Series

Soils of the McQueen series are deep and well drained. They formed in alluvium. These soils are along rivers and large streams in the Piedmont. Slope is 2 to 7 percent.

McQueen soils commonly are near Dogue, Masada, and Wahee soils. They are more than 30 percent silt, and Masada soils are less than 30 percent silt. McQueen soils are better drained than Dogue and Wahee soils.

Typical pedon of McQueen loam, 2 to 7 percent slopes; in pasture about 8 miles east-southeast of Charlottesville, 1 mile west of the end of State Highway 623 on the north side of the Rivanna River:

Ap—0 to 7 inches; dark brown (7.5YR 4/4) loam; strong medium and coarse granular structure; friable; many fine roots; many fine and medium vesicular pores; neutral; clear smooth boundary.

B1—7 to 10 inches; reddish brown (5YR 4/4) clay loam; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and medium roots; slightly acid; gradual smooth boundary.

B21t—10 to 30 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; few thin clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—30 to 42 inches; yellowish red (5YR 4/6) clay; few fine distinct strong brown (7.5YR 5/8) mottles; moderate fine and medium subangular blocky structure; friable, sticky and plastic; common thin clay films on faces of peds; few fine flakes of mica; strongly acid; clear smooth boundary.

B3t—42 to 52 inches; yellowish red (5YR 5/6) clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable, sticky and slightly plastic; few thin clay films on faces of peds; strongly acid; abrupt wavy boundary.

C—52 to 64 inches; strong brown (7.5YR 5/6) and light yellowish brown (10YR 6/4) sandy clay loam; massive; friable, slightly sticky and slightly plastic; 12 percent quartz pebbles 1/4 to 1/2 inch in diameter; strongly acid.

The solum is more than 50 inches thick. The depth to bedrock is more than 5 feet. The soil is strongly acid throughout, unless limed. Quartz pebbles 1/4 inch to 2 inches in diameter make up 0 to 5 percent of the solum.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 through 4.

The B1 horizon has hue of 5YR through 10YR, value of 4 or 5, and chroma of 4 or 6. The B2 horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 or 8. The B22t horizon has high chroma mottles in some pedons. The B2 horizon is clay loam or clay.

The C horizon commonly is multicolored in shades of yellow and brown and ranges from fine sandy loam to sandy clay loam. It has gravelly or very gravelly strata in some pedons.

Meadowville Series

Soils of the Meadowville series are deep and moderately well drained to well drained. They formed in local alluvium and colluvium washed from surrounding upland soils. These soils are on uplands in the Piedmont. Slope is 2 to 15 percent.

Meadowville soils commonly are near Ashe, Belvoir, Chester, Glenelg, Hazel, and Worsham soils. They have more clay in the subsoil and are deeper to bedrock than Ashe and Hazel soils. Meadowville soils are better drained than Belvoir and Worsham soils. They are deeper than Chester and Glenelg soils and commonly have lithologic discontinuity which Chester and Glenelg soils do not have.

Typical pedon of Meadowville loam, 2 to 7 percent slopes; in pasture about 10 miles southwest of Charlottesville, 1 mile northwest of the junction of U.S. Highway 29 and State Highway 692, 1/2 mile northeast of 692:

A1—0 to 3 inches; dark brown (7.5YR 3/2) loam; weak fine granular structure; very friable; many fine and medium roots; many fine flakes of mica; slightly acid; abrupt smooth boundary.

A2—3 to 14 inches; dark brown (7.5YR 4/4) loam; moderate fine granular structure; very friable; many fine and medium roots; many fine flakes of mica; slightly acid; gradual smooth boundary.

B1—14 to 22 inches; brown (7.5YR 4/4) loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; common fine and medium roots; few fine flakes of mica; medium acid; gradual smooth boundary.

B2t—22 to 40 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; few thin patchy clay films on faces of peds; many fine flakes of mica; strongly acid; gradual smooth boundary.

B3—40 to 46 inches; brown (7.5YR 4/4) loam; few fine distinct yellowish brown (10YR 5/6) mottles; moderate coarse angular blocky structure; friable, nonsticky and nonplastic; many fine flakes of mica; medium acid; clear smooth boundary.

IIC1—46 to 60 inches; brown (10YR 4/3) loam; few medium distinct strong brown (7.5YR 5/6) mottles; massive; friable, nonsticky and nonplastic; many fine flakes of mica; medium acid; gradual smooth boundary.

IIC2—60 to 73 inches; brown (10YR 4/3) loam; massive; friable; 2 percent quartz pebbles as much as 4 inches in diameter; common fine flakes of mica; few pockets of medium sand; medium acid.

The solum is 40 to 60 inches thick. The depth to bedrock is more than 5 feet. The soil ranges from very strongly acid to medium acid, unless limed. It is 0 to 10 percent quartz pebbles throughout. Fine flakes of mica are few to many in the subsoil.

The A horizon has hue of 7.5YR or 10YR, value of 3 through 5, and chroma of 2 through 6.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 through 8. It is loam, silt loam, silty clay loam, or clay loam. The B3 horizon in some pedons has low chroma mottles. Stone lines of quartz pebbles are at a depth of 36 to 45 inches in some pedons.

The C horizon is brownish and has mottles of yellow, gray, and white. It commonly is fine sandy loam, loam, or silt loam.

Mount Lucas Series

Soils of the Mount Lucas series are deep and moderately well drained to somewhat poorly drained. They formed in alluvial and residual materials weathered from greenstone. These soils are on uplands in the Piedmont. Slope is 2 to 7 percent.

Mount Lucas soils commonly are near Davidson, Myersville, Rabun, and Starr soils. They are more poorly drained than these soils and have less clay in the solum than Davidson and Rabun soils.

Typical pedon of Mount Lucas silt loam, 2 to 7 percent slopes; in pasture, about 15 miles northeast of Charlottesville, 1/2 mile northeast of the junction of State Highway 231 with a gas pipeline and a power transmission line, under the power transmission line:

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium granular structure; very friable; many fine and medium roots; common fine vesicular pores; medium acid; clear smooth boundary.

B1t—10 to 14 inches; brownish yellow (10YR 6/6) clay loam; few fine faint yellowish brown (10YR 5/8) mottles; weak fine subangular blocky structure; very friable, sticky and slightly plastic; many fine and medium roots; many fine vesicular pores; few thin clay films on faces of peds; few black mineral concretions; medium acid; gradual smooth boundary.

B21t—14 to 24 inches; brownish yellow (10YR 6/6) silty clay loam; few coarse distinct strong brown (7.5YR 5/8), gray (10YR 6/1), and red (2.5YR 4/8) mottles; strong coarse subangular blocky structure; firm, slightly sticky and slightly plastic; common fine and medium roots; many fine vesicular pores; common thin clay films on faces of peds; slightly acid; clear smooth boundary.

B22t—24 to 30 inches; yellowish brown (10YR 5/6) silty clay loam; common coarse distinct light brownish gray (10YR 6/2) mottles; strong medium prismatic structure parting to moderate medium subangular blocky; firm, sticky and plastic; few medium roots; many fine vesicular pores; common thin clay films on faces of peds; slightly acid; gradual smooth boundary.

B23t—30 to 39 inches; reddish yellow (7.5YR 6/8) clay; many coarse prominent light gray (10YR 7/1) mottles; strong coarse angular blocky structure; firm, sticky and plastic; common medium roots; many fine vesicular pores; common thin clay films on faces of peds; medium acid; gradual smooth boundary.

B3tg—39 to 48 inches; light gray (10YR 6/1) clay; common medium distinct yellowish brown (10YR 5/8) mottles; strong coarse angular blocky structure; firm, slightly sticky and plastic; many fine vesicular pores; common thin clay films on face of peds; medium acid; clear smooth boundary.

C1—48 to 58 inches; strong brown (7.5YR 5/8) silty clay loam; few medium prominent black (N 2/0) and light gray (10YR 6/1) mottles; massive; firm, slightly sticky and plastic; 2 percent pebbles of greenstone; slightly acid; gradual smooth boundary.

C2—58 to 64 inches; strong brown (7.5YR 5/8) silty clay loam; common medium prominent black (10YR 2/1) and common medium faint yellowish brown (10YR 5/8) mottles; massive; friable, slightly sticky and slightly plastic; 5 percent pebbles of greenstone; neutral.

The solum is 25 to 50 inches thick. The depth to bedrock is more than 4 feet. The soil is medium acid to neutral. Angular and semirounded greenstone and quartz pebbles 1/4 inch to 3 inches in diameter make up 0 to 15 percent of the A and B horizons and 0 to 35 percent of the C horizon.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 through 4.

The upper part of the B horizon has hue of 5YR, 7.5YR, or 10YR, value of 5 or 6, and chroma of 3 through 6. It is silty clay loam or clay loam. The lower part of the B horizon has hue of 7.5YR or 10YR, value of 5 through 7, and chroma of 1 or 2. It is silty clay loam, silty clay, or clay.

The C horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 through 6. It is silty clay loam, silt loam, or gravelly silt loam.

The Mount Lucas soils in this survey area are taxadjuncts to the series because of the higher clay content in the lower part of the subsoil and in the substratum. This difference does not significantly affect the use and management of these soils.

Myersville Series

Soils of the Myersville series are deep and well drained. They formed in material weathered from greenstone residuum. These soils are on uplands in the Blue Ridge and Piedmont. Slope ranges from 2 to 60 percent.

Myersville soils commonly are near Catoctin, Fauquier, and Rabun soils. Myersville soils are deeper to bedrock than Catoctin soils. They have less clay in the solum than Fauquier and Rabun soils.

Typical pedon of Myersville silt loam, 7 to 15 percent slopes; in hardwood forest, about 11 miles northeast of Charlottesville, about 1 mile northeast of the tower on Southwest Mountain, and 100 yards south of a gasline:

O1—1 inch to 0; undecomposed forest litter of leaves and twigs.

A1—0 to 2 inches; dark brown (7.5YR 3/2) silt loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—2 to 7 inches; brown (7.5YR 4/4) silt loam; moderate fine and medium granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

B1—7 to 11 inches; reddish brown (5YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; 2 percent greenstone fragments less than 1 inch in length; medium acid; gradual smooth boundary.

B2t—11 to 28 inches; yellowish red (5YR 4/6) silty clay loam; strong fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and medium roots; common thin continuous clay films on faces of peds; 5 percent greenstone fragments as much as 2 inches in length; medium acid; gradual smooth boundary.

B3t—28 to 36 inches; yellowish red (5YR 4/8) silt loam; few fine distinct strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable; few thin patchy clay films on face of peds; 10 percent greenstone fragments as much as 3 inches in length; strongly acid; gradual smooth boundary.

C—36 to 44 inches; yellowish red (5YR 5/6) silt loam; common medium faint strong brown (7.5YR 5/8) mottles; massive, very friable; 15 percent greenstone fragments as much as 3 inches in length; strongly acid; gradual smooth boundary.

Cr1—44 to 52 inches; multicolored reddish yellow (7.5YR 6/8) and black (10YR 2/1) weathered greenstone that crushes to silt loam; massive; strongly acid; gradual smooth boundary.

Cr2—52 to 65 inches; multicolored yellowish brown (10YR 5/8) and very dark grayish brown (10YR 3/2) weathered greenstone that crushes to silt loam; massive; strongly acid.

The solum is 20 to 40 inches thick. The depth to bedrock is more than 5 feet. Greenstone fragments make up 0 to 20 percent of the solum and 0 to 75 percent of the C horizon. The soil is medium acid to very strongly acid throughout, unless limed.

The A horizon has hue of 5YR through 10YR, value of 2 through 4, and chroma of 2 through 4.

The B horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 through 8. It is silt loam, clay loam, silty clay loam, or the gravelly analogues of these textures.

The C horizon is multicolored in shades of brown, yellow, red, black, and gray.

Nason Series

Soils of the Nason series are deep and well drained. They formed in the weathered products of sericitic schist. These soils are on uplands in the Piedmont. Slope commonly is 2 to 25 percent.

Nason soils commonly are near Lignum, Manteo, and Tatum soils. They have a thicker solum and have more clay in the subsoil than Manteo soils. Nason soils are better drained than Lignum soils. They are not so red in the subsoil as Tatum soils.

Typical pedon of Nason silt loam, 2 to 7 percent slopes; in mixed hardwood and pine forest, 13 miles northeast of Charlottesville, about 0.5 mile northwest of Lindsay, 170 yards east of Route 615:

O1—1 inch to 0; partly decomposed pine needles and hardwood leaves and twigs.

A1—0 to 2 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2—2 to 8 inches; yellowish brown (10YR 5/4) silt loam; weak fine granular structure; very friable; many fine and medium roots; 15 percent thin weathered schist fragments and angular quartz pebbles 1/4 inch to 2 inches in diameter; very strongly acid; clear smooth boundary.

B1—8 to 14 inches; yellowish brown (10YR 5/8) silty clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; 10 percent angular quartz and weathered schist pebbles 1/4 inch to 2 inches in diameter; extremely acid; clear smooth boundary.

B21t—14 to 19 inches; strong brown (7.5YR 5/6) silty clay; moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; common fine roots; few thin clay films on faces of peds; 2 percent thin weathered schist fragments 1 inch to 3 inches in diameter; very strongly acid; gradual smooth boundary.

B22t—19 to 29 inches; yellowish red (5YR 4/6) silty clay; moderate medium subangular blocky structure; firm, slightly sticky and plastic; common medium clay films on faces of peds; 10 percent weathered thin schist fragments 1 inch to 3 inches in diameter; very strongly acid; gradual smooth boundary.

B3t—29 to 39 inches; yellowish red (5YR 4/6) channery silty clay loam; common medium faint strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; few thin clay films on faces of peds; 25 percent fine and medium partially weathered schist fragments; very strongly acid; irregular wavy boundary.

C—39 to 50 inches; multicolored yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and red (2.5YR 5/6) channery silt loam; massive; friable; 30 percent schist fragments; extremely acid; clear irregular boundary.

R—50 inches; rippable sericitic schist bedrock.

The solum is 25 to 50 inches thick. The depth to bedrock ranges from 40 to 60 inches. The soil is strongly acid to extremely acid, unless limed. Angular quartz pebbles 1/4 inch to 2 inches in diameter make up 0 to 15 percent of the surface layer and 0 to 30 percent of the subsoil and substratum. Partly weathered schist fragments, 1 inch to 3 inches across, make up 0 to 10 percent of the lower part of the subsoil and 2 to 30 percent of the substratum.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 through 6. It is silt loam or loam or is silty clay loam in severely eroded areas.

The B horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 4 through 8. The B2 horizon is silty clay loam, clay, or silty clay. The B3 horizon is silty clay loam, clay loam, or the channery or gravelly analogues of these textures.

The C horizon commonly is multicolored in shades of red, brown, yellow, and white. It is silt loam or channery or very channery silt loam.

A Cr horizon is present below a depth of 50 inches in some pedons. It is partly weathered, commonly rippable sericitic schist.

Orange Series

Soils of the Orange series are deep and somewhat poorly drained to moderately well drained. They formed in the weathered products of hornblende gneiss and other basic rock. These soils are on uplands in the Piedmont. Slope is 2 to 7 percent.

Orange soils commonly are near Cullen, Fluvanna, Myersville, and Nason soils. They are more poorly drained than these soils and have more clay than Myersville soils.

Typical pedon of Orange silt loam, 2 to 7 percent slopes; in a field, 16 miles south of Charlottesville, about 1 mile north of the junction of Routes 20 and 713, 50 yards west of 713:

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine granular structure; very friable; many fine roots; 2 percent fine angular quartz pebbles 1/4 to 1/2 inch in diameter; slightly acid; abrupt smooth boundary.

B21t—9 to 16 inches; yellowish brown (10YR 5/6) silty clay; few fine distinct brownish yellow (10YR 6/8) mottles; strong medium and fine subangular blocky structure; very firm, very sticky and very plastic; common fine roots; many medium clay films and pressure faces on surfaces of peds; common fine brown concretions; slightly acid; clear smooth boundary.

B22t—16 to 23 inches; yellowish brown (10YR 5/6) clay; common fine faint strong brown (7.5YR 5/6) and few fine prominent light gray (2.5Y 7/2) mottles; moderate medium angular blocky structure; very firm, sticky and very plastic; few fine roots; many fine and medium black concretions; 2 percent weathered fragments of basic rock; neutral; gradual smooth boundary.

B23t—23 to 27 inches; yellowish brown (10YR 5/8) clay; many medium prominent light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure parting to weak coarse angular blocky; firm, sticky and very plastic; few fine roots; common medium clay films and pressure faces on surfaces of peds; neutral; gradual smooth boundary.

B3—27 to 33 inches; yellowish brown (10YR 5/8) silty clay loam; many medium prominent light brownish gray (2.5Y 6/2) and very dark gray (10YR 3/1) mottles; weak medium angular blocky structure; firm, sticky and plastic; few fine roots; 15 percent strongly weathered hornblende gneiss and other basic rock fragments; neutral; gradual wavy boundary.

C—33 to 55 inches; multicolored dark yellowish brown (10YR 4/6), yellowish brown (10YR 5/6), and very dark gray (10YR 3/1) loam; massive; few seams filled with light gray (10YR 7/2) clay; few carbonates; neutral.

R—55 inches; bedrock.

The solum is 20 to 40 inches thick. The depth to bedrock is 40 to 60 inches. Angular quartz pebbles, 1/4 inch to 3 inches in diameter, make up 0 to 10 percent of the solum. The solum is strongly acid or medium acid in the upper part, unless limed. The lower part of the B horizon and the C horizon range from medium acid to moderately alkaline. Dark colored concretions and stains are common throughout the soil.

The A horizon has hue of 10YR through 2.5Y, value of 4 through 6, and chroma of 2 through 6.

The Bt horizon has hue of 7.5YR through 2.5Y, value of 4 through 6, and chroma of 4 through 8. It is clay, clay loam, silty clay loam, or silty clay.

The C horizon commonly is multicolored in shades of green, yellow, brown, gray, and white. It is loam, sandy loam, silt loam, or sandy clay loam. In some pedons, a Cr horizon is present. It has colors similar to those of the C horizon. It is partly weathered basic igneous and metamorphic rock that crushes to loam or silt loam.

Pacolet Series

Soils of the Pacolet series are deep and well drained. They formed in the weathered products of granite and granite gneiss. These soils are on uplands in the Piedmont. Slope commonly is 2 to 15 percent.

Pacolet soils commonly are near Cullen, Elioak, Glenelg, Louisburg, and Wedowee soils. They have a thinner solum than Cullen and Elioak soils and have a redder subsoil than Glenelg and Wedowee soils. Pacolet soils have more clay in the subsoil than Glenelg and Louisburg soils.

Typical pedon of Pacolet sandy loam, 2 to 7 percent slopes; in pasture, about 5 miles north of Charlottesville, 1/2 mile east of the junction of State Highways 643 and 743, 1/4 mile west of U.S. Highway 29:

Ap—0 to 6 inches; brown (10YR 5/3) sandy loam; weak very fine granular structure; friable; many fine and medium roots; many fine and medium pores; strongly acid; clear smooth boundary.

B1—6 to 9 inches; yellowish red (5YR 5/6) sandy clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium roots; many fine pores; medium acid; gradual smooth boundary.

B21t—9 to 14 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and common medium roots; few thin clay films on faces of peds; few fine flakes of mica; 2 percent angular quartz pebbles as much as 1 inch in diameter; medium acid; gradual smooth boundary.

B22t—14 to 25 inches; red (2.5YR 5/8) clay; strong fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; few medium and large roots; few thin clay films on faces of peds; few fine flakes of mica; strongly acid; gradual smooth boundary.

B3—25 to 32 inches; red (2.5YR 5/6) clay loam; few fine distinct reddish yellow (5YR 6/8) and strong brown (7.5YR 5/8) mottles; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine flakes of mica; 2 percent strongly weathered granite fragments as much as 2 inches in diameter; strongly acid; gradual wavy boundary.

C—32 to 60 inches; multicolored red (2.5YR 5/60, yellowish red (5YR 5/6), and strong brown (7.5YR 5/6) sandy clay loam; massive; friable; common fine flakes of mica; 80 percent granite saprolite that crushes easily; 2 percent quartz pebbles as much as 1 inch in diameter; strongly acid.

The solum is 20 to 40 inches thick. The depth to weathered bedrock is 30 to more than 60 inches. Depth to hard bedrock is more than 5 feet. The soil is medium acid to very strongly acid, unless limed. Angular quartz pebbles and weathered rock fragments make up 0 to 15 percent of the solum. Most pedons have few to common mica flakes in one or more horizons.

The A horizon has hue of 10YR through 5YR, value of 3 through 5, and chroma of 1 through 4. It is sandy loam, fine sandy loam, or loam and the gravelly analogues of these textures.

The B1 horizon has hue of 7.5YR through 2.5YR, value of 4 or 5, and chroma of 3 through 8. It is clay loam, sandy clay loam, or loam.

The B2t horizon has hue of 2.5YR or 10R, value of 4 or 5, and chroma of 6 or 8. It is clay, sandy clay, or clay loam.

The B3 horizon has hue of 5YR through 10R, value of 4 or 5, and chroma of 6 or 8. It commonly has mottles in shades of yellow or brown. In some pedons, the B3 horizon is mottled in shades of red, yellow, or brown. It is clay loam or sandy clay loam.

The C horizon is multicolored in shades of red, yellow, brown, and white. It is sandy loam, loam, sandy clay loam, or clay loam. A Cr horizon is present in some pedons.

Parker Series

Soils of the Parker series are deep and excessively drained. They formed in the weathered products of granite and granite gneiss. They are on uplands in the Blue Ridge. Slope ranges from about 7 to 60 percent.

Parker soils commonly are near Ashe, Chester, and Porters soils. They have more coarse fragments in the subsoil than these soils. Parker soils do not have the thick dark surface of Porters soils.

Typical pedon of Parker very stony loam in an area of Parker extremely stony loam, 25 to 60 percent slopes; in hardwood forest, about 12 miles northwest of Charlottesville on the northeast side of Fox Mountain, 1 3/4 miles north of the junction of State Highway 668 and a fire trail, and 35 yards southwest of the fire trail:

O2—2 inches to 0; dark brown (7.5YR 3/2) highly decomposed hardwood leaf litter; less than 1/3 fiber, rubbed; many fine roots; 20 percent stones and 10 percent angular cobbles of granite gneiss on the surface; abrupt smooth boundary.

A1—0 to 2 inches; dark brown (10YR 3/3) very stony loam; weak fine granular structure; very friable, nonsticky and nonplastic; many fine and medium roots; 15 percent stones, 10 percent angular cobbles, and 10 percent angular pebbles of granite gneiss; extremely acid; abrupt smooth boundary.

A2—2 to 14 inches; brownish yellow (10YR 6/6) very cobbly loam; weak fine granular structure; very friable, nonsticky and nonplastic; many fine and medium roots; 25 percent angular cobbles and 20 percent angular pebbles of granite gneiss; very strongly acid; clear smooth boundary.

B21—14 to 24 inches; yellowish brown (10YR 5/6) extremely cobbly loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; 10 percent stones, 40 percent angular cobbles, and 20 percent angular pebbles of granite gneiss; strongly acid; gradual wavy boundary.

B22—24 to 32 inches; dark yellowish brown (10YR 4/6) extremely cobbly loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common medium roots; 15 percent stones, 40 percent angular cobbles, and 10 percent angular pebbles of granite gneiss; strongly acid; gradual wavy boundary.

B3—32 to 38 inches; dark yellowish brown (10YR 4/6) extremely cobbly loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common medium roots; 15 percent stones, 20 percent angular cobbles, and 20 percent angular pebbles of granite gneiss; medium acid; gradual wavy boundary.

C—38 to 67 inches; yellowish brown (10YR 5/6) very stony sandy loam; massive; friable, nonsticky and slightly plastic; common medium roots; many fine irregular pores; few brown (7.5YR 4/4) clay flows around rock fragments; 30 percent stones and 30 percent angular cobbles of granite gneiss; strongly acid; abrupt wavy boundary.

R—67 inches; hard granite gneiss.

The solum is 20 to 40 inches thick. The depth to bedrock is more than 4 feet. Angular rock fragments of granite or granite gneiss range from 35 to 70 percent in the solum and 60 to 80 percent in the C horizon. The solum is strongly acid to extremely acid, unless limed.

The A1 horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 through 4. The A2 horizon has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 5 or 6. The A horizon is very gravelly, very cobbly, or very stony loam.

The B horizon has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 4 through 6. It is very or extremely gravelly, cobbly, or stony loam or sandy loam.

The C horizon has colors and textures similar to those of the B horizon.

Penn Series

Soils of the Penn series are moderately deep and well drained. They formed in materials weathered from Triassic red shale. These soils are on uplands in the Piedmont. Slope ranges from 2 to 25 percent.

Penn soils commonly are near Klinesville, Manassas, Mayodan, Rapidan, and Totier soils. They have a thicker solum than Klinesville soils. Penn soils are shallower to bedrock than Manassas soils and have less clay in the subsoil than Mayodan, Rapidan, and Totier soils.

Typical pedon of Penn silt loam, 2 to 7 percent slopes; in pasture, about 15 miles south of Charlottesville, 0.5 mile south of the junction of State Highways 6 and 626 and about 400 yards east of 626:

Ap—0 to 7 inches; reddish brown (2.5YR 4/4) silt loam; moderate fine and medium granular structure; friable, slightly sticky and slightly plastic; common fine roots; 5 percent shale fragments less than 1/2 inch in length; neutral; clear smooth boundary.

B21t—7 to 15 inches; red (2.5YR 4/6) silty clay loam; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine roots; few thin clay films on faces of peds; 10 percent shale fragments less than 1 inch in length; slightly acid; gradual wavy boundary.

B22t—15 to 21 inches; red (2.5YR 4/6) shaly silty clay loam; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; common thin clay films on faces of peds; 25 percent shale fragments less than 2 inches in length; medium acid; clear wavy boundary.

C—21 to 29 inches; red (2.5YR 4/6) extremely shaly silt loam; massive; friable, slightly slicky and slightly plastic; few fine roots; 70 percent oriented shale with soil in fractures; medium acid; clear smooth boundary.

R—29 inches; oriented red (2.5YR 4/6) shale bedrock; rippable.

The solum is 17 to 34 inches thick. The depth to bedrock is 20 to 40 inches. The soil is slightly acid to strongly acid, unless limed. Coarse fragments make up 2 to 15 percent of the A horizon, 10 to 30 percent of the B horizon, and 30 to 70 percent of the C horizon. The coarse fragments consist of angular red shale and quartzite.

The A horizon has hue of 2.5YR through 7.5YR, value of 3 or 4, and chroma of 3 or 4.

The B2t horizon has hue of 10R through 5YR, value of 3 or 4, and chroma of 4 through 6. The B2t horizon is silty clay loam, silt loam, or the shaly analogues of these textures.

The B3 horizon, if present, has hue of 10R or 2.5YR, value of 3 or 4, and chroma of 6. It is shaly or very shaly silt loam or silty clay loam.

The C horizon, if present, has colors and textures similar to those of the B3 horizon.

Porters Series

Soils of the Porters series are deep and well drained. They formed in the weathered products of granite, granodiorite, and granite gneiss. These soils are on uplands in the Blue Ridge. Slope ranges from 7 to 45 percent.

Porters soils commonly are near Ashe, Chester, and Parker soils. They have more clay in the subsoil than Ashe and Parker soils and have a thick, dark surface layer that the Chester soils do not have.

Typical pedon of Porters cobbly loam in an area of Porters very stony loam, 7 to 15 percent slopes; in mixed hardwood forest, about 12 miles southwest of Charlottesville on top of Heards Mountain, 130 yards north of a fire tower:

O1—2 inches to 0; undecomposed forest litter of leaves, sticks, and twigs.

A1—0 to 8 inches; black (10YR 2/1) cobbly loam; moderate very fine granular structure; very friable, nonsticky and nonplastic; many fine and medium roots; 30 percent angular cobbles of granodiorite; strongly acid; clear smooth boundary.

B1—8 to 12 inches; dark brown (7.5YR 4/4) loam; weak fine subangular blocky structure; very friable, nonsticky and nonplastic; many large and medium roots; 10 percent angular cobbles of granodiorite; strongly acid; gradual smooth boundary.

B2t—12 to 26 inches; brown (7.5YR 4/4) loam; weak fine and medium subangular blocky structure; friable, nonsticky and nonplastic; few thin clay films on faces of peds; 10 percent angular cobbles of granodiorite; very strongly acid; gradual smooth boundary.

B3—26 to 32 inches; dark yellowish brown (10YR 4/4) loam; weak very fine subangular blocky structure; friable, nonsticky and nonplastic; few fine mica flakes; 10 percent angular cobbles of granodiorite; very strongly acid; gradual wavy boundary.

C—32 to 59 inches; brownish yellow (10YR 6/6) sandy loam; massive; firm in place, nonsticky and nonplastic; 10 percent angular cobbles of granodiorite; very strongly acid; abrupt wavy boundary.

R—59 inches; hard granodiorite bedrock.

The solum is 20 to 40 inches thick. The depth to bedrock ranges from 40 to 60 inches. Angular rock fragments of granite, granodiorite, or granite gneiss range from 0 to 15 percent throughout the soil. The solum ranges from very strongly acid to medium acid, unless limed.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 through 3.

The B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 through 8. It is loam to clay loam.

The C horizon is generally lighter in color than the B horizon. It is weathered granodiorite, granite, or granite gneiss and is sandy loam.

Rabun Series

Soils of the Rabun series are deep and well drained. They formed in the weathered products of greenstone. These soils are on uplands in the Piedmont. Slope ranges from 2 to 45 percent.

Rabun soils commonly are near Catoctin, Davidson, Dyke, and Myersville soils. They have more clay in the subsoil and a redder and thicker solum than Catoctin and Myersville soils. Rabun soils have a thinner solum than Davidson soils. They are kaolinitic, and Dyke soils have mixed mineralogy.

Typical pedon of Rabun clay loam, 7 to 15 percent slopes; in cropland, about 11 miles northeast of Charlottesville, 200 yards north of State Highway 640 and 100 yards west of road to the tower on Southwest Mountain:

Ap—0 to 6 inches; dark reddish brown (5YR 3/3) clay loam; moderate medium granular structure; friable; many fine and medium roots; medium acid; gradual smooth boundary.

B21t—6 to 14 inches; dark red (2.5YR 3/6) clay; moderate fine subangular blocky structure; friable, sticky and slightly plastic; common fine and medium roots; common thin clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—14 to 36 inches; dark red (10R 3/6) clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; common thin clay films on faces of peds; strongly acid; gradual smooth boundary.

B3t—36 to 48 inches; dark red (2.5YR 4/6) clay loam; few medium distinct yellowish red (5YR 4/8) mottles; weak fine and medium subangular blocky structure; friable, sticky and slightly plastic; few thin clay films on faces of peds; strongly acid; gradual irregular boundary.

C—48 to 63 inches; red (2.5YR 4/6) silty clay loam; common medium distinct strong brown (7.5YR 5/6) and yellowish red (5YR 4/8) mottles; massive; friable; 2 percent weathered greenstone fragments; strongly acid.

The solum is 30 to 60 inches thick. The depth to hard rock is more than 60 inches. The soil is slightly acid to strongly acid, unless limed. Angular quartz pebbles 1/4 inch to 2 inches in diameter and weathered rock fragments 1 inch to 4 inches in length make up 0 to 10 percent of the solum.

The A horizon has hue of 5YR through 10R, value of 3, and chroma of 2 through 6. It is commonly clay loam but ranges to clay in severely eroded areas.

The Bt horizon has hue of 2.5YR or 10R, value of 3, and chroma of 3 through 6. It is clay, clay loam, or silty clay.

The C horizon has hue of 7.5YR through 2.5YR, value of 4 or 5, and chroma of 6 or 8. It is silty clay loam or silt loam, or is highly weathered greenstone that crushes to these textures.

Rapidan Series

Soils of the Rapidan series are deep and well drained. They formed in the weathered products of Triassic conglomerate. These soils are on uplands in the Piedmont. Slope ranges from 2 to 25 percent.

Rapidan soils commonly are near Klinesville, Penn, and Totier soils. They have more clay in the subsoil and are deeper to bedrock than Klinesville and Penn soils. Rapidan soils have darker red colors throughout than Totier soils.

Typical pedon of Rapidan silt loam, 2 to 7 percent slopes; in cropland, about 18 miles south of Charlottesville, 670 yards east of the junction of State Highways 626 and 723, 100 yards west of woods:

Ap—0 to 6 inches; dark reddish brown (5YR 3/4) silt loam; moderate medium granular structure; friable, slightly sticky and slightly plastic; many fine and medium roots; 10 percent angular quartz pebbles; neutral; abrupt smooth boundary.

B21t—6 to 13 inches; dark reddish brown (2.5YR 3/4) clay; strong medium subangular blocky structure; firm, sticky and plastic; common fine and medium roots; common thin clay films on faces of peds; 5 percent angular quartz pebbles; neutral; gradual smooth boundary.

B22t—13 to 25 inches; dark red (2.5YR 3/6) clay; strong medium subangular blocky structure; firm, sticky and slightly plastic; common medium and fine roots; common thin clay films on faces of peds; medium acid; gradual smooth boundary.

B23t—25 to 38 inches; dark red (2.5YR 3/6) clay; moderate medium and fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and medium roots; few thin clay films on faces of peds; 2 percent angular quartz pebbles; strongly acid; gradual smooth boundary.

B24t—38 to 54 inches; dark red (2.5YR 3/6) clay; few medium distinct strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few thin clay films on faces of peds; 15 percent weathered conglomerate fragments less than 1 inch in diameter; strongly acid; gradual smooth boundary.

C—54 to 70 inches; reddish brown (2.5YR 4/4) silty clay loam; common medium prominent strong brown (7.5YR 5/8), common medium faint weak red (10R 4/4), and few medium distinct yellowish red (5YR 4/6) mottles; massive; friable, slightly sticky and nonplastic; 15 percent weathered conglomerate fragments less than 1 inch in diameter; medium acid.

The solum is 40 to 60 inches thick. The depth to hard rock is more than 5 feet. The soil is medium acid or strongly acid, unless limed. Angular quartz pebbles 1/4 inch to 2 inches in diameter and weathered rock fragments as much as 2 inches in length make up 0 to 10 percent of the A and B2t horizons. Coarse fragments make up 0 to 30 percent of the B3 horizon and 0 to 60 percent of the C horizon.

The A horizon has hue of 2.5YR or 5YR, value of 3, and chroma of 3 or 4. It is silt loam or silty clay loam.

The B2t horizon has hue of 10R or 2.5YR, value of 3, and chroma of 4 through 6. It is clay, silty clay, silty clay loam, or clay loam.

The B3t horizon, if present, has hue of 10R through 5YR, value of 3, and chroma of 4 through 6. It is silty clay loam, clay loam, or the gravelly analogues of these textures.

The C horizon has hue of 10R through 5YR, value of 3 through 5, and chroma of 4 through 8. It is clay loam, silty clay loam, silt loam, or the gravelly or very gravelly analogues of these textures.

Riverview Series

Soils of the Riverview series are deep and well drained. They formed in loamy alluvial material washed from soils on uplands. These soils are on flood plains in the Piedmont and are subject to occasional flooding. Slope is 0 to 2 percent.

Riverview soils commonly are near Buncombe, Chewacla, Toccoa, and Wehadkee soils. They have more clay in the subsoil than Buncombe or Toccoa soils. Riverview soils are better drained than Chewacla and Wehadkee soils.

Typical pedon of Riverview loam; in cropland, about 3 miles northeast of Charlottesville, 2 miles east of the junction of U.S. Highway 29 and State Highway 631, 225 yards north of the convergence of the North and South Forks of the Rivanna River:

Ap—0 to 12 inches; dark brown (7.5YR 4/4) loam; weak very fine granular structure; very friable; many fine roots; few worm channels; many fine flakes of mica; slightly acid; abrupt smooth boundary.

B21—12 to 21 inches; strong brown (7.5YR 4/6) silt loam; weak fine subangular blocky structure; very friable; many fine roots; few worm channels; many fine flakes of mica; medium acid; gradual smooth boundary.

B22—21 to 29 inches; brown (7.5YR 4/4) silt loam; weak fine subangular blocky structure; friable; many fine roots; common very fine flakes of mica; strongly acid; clear wavy boundary.

B3—29 to 35 inches; brown (7.5YR 4/4) loam; weak fine subangular blocky structure; friable; many fine roots; few very fine flakes of mica; strongly acid; gradual smooth boundary.

C1—35 to 43 inches; dark yellowish brown (10YR 4/4) silt loam; massive; very friable; common fine roots; common very fine flakes of mica; strongly acid; gradual smooth boundary.

C2—43 to 60 inches; dark yellowish brown (10YR 4/4) silt loam; massive; very friable; many fine flakes of mica; very strongly acid.

The solum is 24 to 40 inches thick. The depth to bedrock is more than 5 feet. Flakes of mica range from few to common throughout. The soil is strongly acid or very strongly acid, unless limed.

The A horizon has hue of 7.5YR or 10YR, value of 3 through 5, and chroma of 3 or 4.

The B horizon has hue of 7.5YR or 10YR, value of 3 through 5, and chroma of 4 through 8. In some pedons, it has low chroma mottles below a depth of 24 inches. The B horizon is loam, silt loam, or silty clay loam.

The C horizon has colors similar to those of the A and B horizons. In some pedons, it has high chroma mottles. The C horizon is loam, silt loam, or fine sandy loam.

Rowland Series

Soils of the Rowland series are deep and moderately well drained to somewhat poorly drained. They formed in alluvium washed from uplands underlain by Triassic red shale and conglomerate. These soils are along streams and rivers in the Piedmont and are subject to occasional flooding. Slope is 0 to 2 percent.

Rowland soils commonly are near Bermudian, Klinesville, Manassas, and Penn soils. Rowland soils are more poorly drained than these soils.

Typical pedon of Rowland silt loam; in pasture, about 17 miles south of Charlottesville, 0.5 mile east of the junction of State Highway 626 and Rock Castle Creek and 10 yards north of Rock Castle Creek:

Ap—0 to 11 inches; dark reddish brown (5YR 3/4) silt loam; moderate fine granular structure; very friable, slightly sticky and slightly plastic; many fine and medium roots; medium acid; abrupt smooth boundary.

B1—11 to 16 inches; reddish brown (5YR 4/4) silt loam; few fine faint brown (7.5YR 5/4) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; medium acid; clear wavy boundary.

B2—16 to 30 inches; reddish brown (5YR 5/4) silt loam; common medium distinct pinkish gray (5YR 6/2) and brown (7.5YR 5/2) mottles; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; medium acid; clear wavy boundary.

B3—30 to 38 inches; multicolored reddish brown (5YR 5/3), strong brown (7.5YR 5/6), and gray (5YR 6/1) silty clay loam; weak coarse angular blocky structure; friable, sticky and plastic; 10 percent pebbles as much as 1 inch in diameter; medium acid; abrupt smooth boundary.

IIC—38 to 60 inches; yellowish red (5YR 4/6) very gravelly silt loam; common fine prominent weak red (2.5YR 5/2) and gray (5YR 6/1) mottles; massive; friable, slightly sticky and nonplastic; 45 percent pebbles as much as 2 inches in diameter; slightly acid.

The solum is 24 to 40 inches thick. The depth to bedrock is more than 5 feet. The soil is very strongly acid to medium acid, unless limed. Coarse fragments of gravel and shale range from 0 to 10 percent in the solum and from 0 to 50 percent in the C horizon.

The A horizon has hue of 7.5YR through 2.5YR, value of 3 through 5, and chroma of 3 or 4.

The B horizon has hue of 7.5YR through 2.5YR, value of 3 through 6, and chroma of 3 through 8. It is silt loam to silty clay loam.

The C horizon has colors similar to those of the B horizon and is mottled. It is silt loam, sandy loam, silty clay loam, or the gravelly or very gravelly analogues of these textures.

Starr Series

Soils of the Starr series are deep and well drained. They formed in local alluvium and colluvium washed from surrounding upland soils. These soils are on uplands in the Piedmont. Slope ranges from 2 to 7 percent.

Starr soils commonly are near Cullen, Davidson, Dyke, Hiwassee, and Rabun soils. Starr soils have less clay in the subsoil than these soils.

Typical pedon of Starr silt loam, 2 to 7 percent slopes; in pasture, about 8 miles south of Charlottesville, 1.6 miles northeast of Carters Bridge on State Highway 627 and 20 yards north of 627:

Ap—0 to 9 inches; reddish brown (2.5YR 4/4) silt loam; moderate fine granular structure; very friable; many fine and medium roots; 1 percent greenstone fragments as much as 1 inch in diameter; slightly acid; clear smooth boundary.

A2—9 to 18 inches; reddish brown (5YR 4/4) silt loam; weak fine subangular blocky structure; very friable, slightly sticky and slightly plastic; many fine roots; 1 percent fragments as much as 1 inch in diameter; slightly acid; clear wavy boundary.

B1—18 to 22 inches; red (2.5YR 4/6) silty clay loam; weak fine and very fine subangular blocky structure; friable, sticky and slightly plastic; many fine roots; slightly acid; gradual wavy boundary.

B21—22 to 35 inches; reddish brown (2.5YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; friable, sticky and slightly plastic; common fine roots; 1 percent weathered greenstone fragments as much as 1 inch in diameter; medium acid; gradual smooth boundary.

B22—35 to 53 inches; reddish brown (2.5YR 4/4) silty clay loam; moderate fine and very fine subangular blocky structure; friable, sticky and plastic; few fine roots; 1 percent greenstone and quartz fragments as much as 1 inch in diameter; medium acid; gradual wavy boundary.

IIC—53 to 58 inches; reddish brown (2.5YR 4/4) clay loam; few medium prominent strong brown (7.5YR 5/8) mottles; massive; friable, slightly sticky and slightly plastic; few black (10YR 2/1) oxide stains on faces of peds; 15 percent greenstone fragments as much as 1 inch in diameter; medium acid; abrupt wavy boundary.

IIBb—58 to 68 inches; red (2.5YR 4/6) clay loam; common medium distinct strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few black (10YR 2/1) oxide stains on faces of peds; slightly acid.

The solum is 30 to 60 inches thick. The depth to bedrock is 5 feet or more. The soil is strongly acid to slightly acid, unless limed. Coarse fragments range from 0 to 15 percent throughout the soil. In some pedons, the buried B horizon is not present.

The A horizon has hue of 5YR or 2.5YR, value of 3 or 4, and chroma of 3 through 6.

The B horizon has hue of 7.5YR or 5YR, value of 3 through 5, and chroma of 4 through 8. It is loam, silty clay loam, or clay loam.

The C horizon has hue of 7.5YR through 2.5YR, value of 3 through 6, and chroma of 3 through 8. It is clay loam or gravelly clay loam.

Tatum Series

Soils of the Tatum series are deep and well drained. They formed in the weathered products of sericitic schist. These soils are on uplands in the Piedmont. Slope commonly ranges from 2 to 15 percent.

Tatum soils commonly are near Manteo and Nason soils. Tatum soils have a thicker solum than Manteo soils and a redder subsoil than Nason soils.

Typical pedon of Tatum silt loam, 2 to 7 percent slopes; in mixed hardwood forest, 9 miles southeast of Charlottesville, about 1/2 mile northwest of State Highway 618, about 100 yards west of State Highway 53:

A1—0 to 1 inch; grayish brown (10YR 5/2) silt loam; weak very fine granular structure; very friable; many fine and medium roots; 2 percent angular quartz pebbles 1/4 inch to 2 inches in diameter; very strongly acid; abrupt smooth boundary.

A2—1 to 6 inches; light yellowish brown (10YR 6/4) silt loam; weak fine granular structure; friable; many fine and medium roots; 8 percent angular quartz pebbles 1/4 inch to 2 inches in diameter; strongly acid; clear smooth boundary.

B1t—6 to 11 inches; strong brown (7.5YR 5/6) silty clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; few thin clay films on faces of peds; 2 percent angular quartz pebbles 1/4 inch to 2 inches in diameter; many very fine flakes of mica; very strongly acid; gradual smooth boundary.

B21t—11 to 20 inches; red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; firm, slightly sticky and plastic; common medium roots; continuous thin clay films on faces of peds; 2 percent angular quartz pebbles 1/4 inch to 1 inch in diameter; many very fine flakes of mica; very strongly acid; gradual smooth boundary.

B22t—20 to 36 inches; red (2.5YR 4/6) clay; strong medium subangular blocky structure; firm, slightly sticky and slightly plastic; common thin clay films on faces of peds; 2 percent weathered schist fragments; many very fine flakes of mica; very strongly acid; gradual smooth boundary.

B3t—36 to 42 inches; red (2.5YR 5/6) silty clay loam; common medium faint yellowish red (5YR 4/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few thin and medium clay films on faces of peds; many very fine flakes of mica; 15 percent strongly weathered schist fragments; very strongly acid; clear wavy boundary.

C—42 to 51 inches; multicolored in shades of red, yellow, brown, and gray channery silt loam; massive; very friable; common thick clay flows in crevices; many very fine flakes of mica; 35 percent strongly weathered schist fragments; very strongly acid; clear wavy boundary.

R—51 inches; sericitic schist; rippable; difficult to dig with spade.

The solum is 25 to 50 inches thick. The depth to bedrock is more than 40 inches. The soil is strongly acid or very strongly acid, unless limed. Angular quartz pebbles, 1/4 inch to 1 inch in diameter, make up 0 to 15 percent of the solum. Mica flakes are common throughout. In some pedons, 20 to 40 percent of the B3 and C horizons is strongly weathered schist fragments.

The A horizon has hue of 10YR or 7.5YR, value of 3 through 6, and chroma of 2 through 6, except chroma of 2 in a thin A1 horizon. The A horizon is loam or silt loam.

The B1t horizon has hue of 7.5YR, value of 4 through 6, and chroma of 6 or 8. It is silty clay loam or clay loam. The B2t horizon has hue of 2.5YR or 10R, value of 4 or 5, and chroma of 6 or 8. It is clay loam, silty clay loam, silty clay, or clay. The B3t horizon has colors similar to those of the B2t horizon and is mottled in shades of brown, yellow, white, or gray. It is silty clay loam or clay loam.

The C horizon is multicolored and commonly is strongly weathered sericitic schist that crushes easily to silt loam. A Cr horizon is present in a few pedons.

Thurmont Series

Soils of the Thurmont series are deep and well drained. They formed in colluvium from granite, granodiorite, and granite gneiss. These soils are in the Piedmont. Slope ranges from 2 to 25 percent.

Thurmont soils commonly are near Ashe, Braddock, Hayesville, and Tusquitee soils. They have more clay in the subsoil than Ashe soils. Thurmont soils are not so red or do not have as much clay in the subsoil as

Braddock and Hayesville soils. They have a lighter colored A horizon than Tusquitee soils.

Typical pedon of Thurmont loam, 7 to 15 percent slopes; in woodland, about 11 miles northwest of Charlottesville, 1.2 miles west of the junction of State Highways 664 and 776, 160 yards southwest of Buck Mountain Creek:

O1—2 inches to 0; partially decomposed leaves, twigs, and other organic material; abrupt smooth boundary.

A1—0 to 1 inch; dark grayish brown (10YR 4/2) loam; weak very fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—1 inch to 10 inches; brown (10YR 5/3) loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

B1—10 to 19 inches; brown (7.5YR 5/4) loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; very strongly acid; gradual smooth boundary.

B21t—19 to 25 inches; yellowish red (5YR 5/6) clay loam; moderate medium and fine subangular blocky structure; friable, slightly sticky and slightly plastic; few thin clay films on faces of peds; very strongly acid; gradual smooth boundary.

B22t—25 to 34 inches; yellowish red (5YR 4/6) clay loam; moderate medium and fine subangular blocky structure; friable, slightly sticky and slightly plastic; common thin clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3t—34 to 46 inches; yellowish red (5YR 4/6) sandy clay loam; few medium distinct light yellowish brown (10YR 6/4) mottles; weak fine subangular blocky structure; friable, nonsticky and slightly plastic; few thin clay films on faces of peds; very strongly acid; gradual wavy boundary.

C1—46 to 56 inches; yellowish red (5YR 4/6) loam, pockets of clay loam; many coarse distinct light yellowish brown (10YR 6/4) mottles; massive; very friable; very strongly acid; gradual wavy boundary.

IIC2—56 to 68 inches; light yellowish brown (10YR 6/4) granitic saprolite that crushes to loam; common coarse distinct strong brown (7.5YR 5/6) mottles; massive, rock controlled structure; firm in place; very strongly acid.

The solum is 30 to 60 inches thick. The depth to hard bedrock is more than 5 feet. The soil is strongly acid or very strongly acid, unless limed. Coarse fragments of pebbles and cobbles range from 0 to 15 percent in the A horizon and from 0 to 35 percent in the B and C horizons. Fragments are quartz, granite, granodiorite, or granite gneiss. Depth to a lithologic discontinuity ranges from 30 to 60 inches.

The A horizon has hue of 7.5YR through 2.5Y, value of 4 or 5, and chroma of 3 through 6.

The B1 horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 through 6. It is loam, sandy clay loam, or clay loam. The B2t horizon has hue of 5YR or 7.5YR, value of 4 through 6, and chroma of 4 through 8. It is clay loam, sandy clay loam, or the gravelly or cobbly analogues of these textures. The B3t horizon has hue of 5YR through 10YR, value of 4 through 6, and chroma of 4 through 8. It is loam, sandy loam, or sandy clay loam.

The C horizon commonly is multicolored in shades of yellow, red, and brown. It is loam or sandy loam or is saprolite that crushes to these textures. In some pedons, a stone line is present in the B3 or C1 horizon.

Toccoa Series

Soils of the Toccoa series are deep and well drained. They formed in alluvium. These soils are along streams in the Piedmont. Slope commonly is 0 to 2 percent.

Toccoa soils commonly are near Buncombe, Chewacla, and Riverview soils. They have more clay than Buncombe soils. Toccoa soils are better drained than Chewacla soils. They have less clay than Riverview soils.

Typical pedon of Toccoa fine sandy loam; in a hay field, about 5 miles east-southeast of Charlottesville, 1 mile southeast of the junction of State Highways 732 and 729 and 660 yards east of 729 between the University of Virginia Airport runways:

Ap—0 to 9 inches; dark brown (7.5YR 4/4) fine sandy loam; weak fine granular structure; very friable; common fine roots; few fine flakes of mica; slightly acid; abrupt smooth boundary.

C1—9 to 17 inches; brown (7.5YR 4/4) sandy loam; massive; very friable; few fine roots; few fine flakes of mica; slightly acid; abrupt smooth boundary.

C2—17 to 29 inches; dark yellowish brown (10YR 4/4) fine sandy loam; massive; very friable; few fine roots; few fine flakes of mica; slightly acid; gradual wavy boundary.

C3—29 to 46 inches; brown (10YR 5/3) sandy loam; massive; very friable; few fine roots; few fine flakes of mica; slightly acid; gradual wavy boundary.

C4—46 to 60 inches; brown (10YR 5/3) sandy loam; massive; friable; few, 1/4 inch thick, brown (7.5YR 4/4) clay loam bands 4 inches apart; common fine flakes of mica; slightly acid; gradual wavy boundary.

C5—60 to 66 inches; yellowish brown (10YR 5/4) fine sandy loam; massive; friable; few, 1/4 inch thick, brown (7.5YR 4/4) clay loam bands 4 inches apart; common fine flakes of mica; slightly acid.

The depth to bedrock is more than 5 feet. The soil is medium acid or slightly acid. Thin bands or bedding planes are common throughout the C horizon. Flakes of mica are few to many throughout the pedon.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 through 6.

The C horizon has colors similar to those of the A horizon. Gravelly or very gravelly strata are in some pedons, generally below a depth of 40 inches. The C horizon is sandy loam or fine sandy loam.

Totier Series

Soils of the Totier series are deep and well drained. They formed in material weathered from Triassic red shale. These soils are on uplands on the Piedmont. Slope ranges from 2 to 15 percent.

Totier soils commonly are near Klinesville, Manassas, Penn, and Rapidan soils. They have a thicker solum than Klinesville and Penn soils. Totier soils have more clay in the subsoil than Klinesville, Manassas, and Penn soils. They have red colors in the solum, and Rapidan soils have dark red colors.

Typical pedon of Totier silt loam, 2 to 7 percent slopes; in pasture, about 13 miles south of Charlottesville, 1.9 miles northeast of Tapscott, 0.7 mile southwest of the junction of State Highways 6 and 626, about 100 yards east of a trench silo:

Ap—0 to 8 inches; reddish brown (5YR 4/4) silt loam; moderate fine granular structure; very friable, slightly sticky and nonplastic; common fine roots; slightly acid; clear smooth boundary.

B21t—8 to 12 inches; yellowish red (5YR 4/6) silty clay loam; few medium distinct reddish brown (5YR 5/3) mottles; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; few thin clay films on faces of peds; slightly acid; gradual wavy boundary.

B22t—12 to 32 inches; red (2.5YR 4/6) silty clay; strong fine subangular blocky structure; friable, sticky and plastic; few fine roots; continuous thin clay films on faces of peds; 2 percent shale fragments less than 1 inch in length; medium acid; gradual smooth boundary.

B3t—32 to 40 inches; red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; friable, sticky and slightly plastic; few thin clay films on faces of peds; 15 percent red shale fragments as much as 1 inch in length; very strongly acid; gradual smooth boundary.

C—40 to 49 inches; red (2.5YR 4/6) shaly silty clay; massive; firm, slightly sticky and slightly plastic; 30 percent red shale fragments less than 2 inches in length; very strongly acid; gradual smooth boundary.

Cr—49 to 63 inches; red (2.5YR 4/6) soft shale; few thin dark red (2.5YR 3/6) and pinkish gray (7.5YR 7/2) silty clay loam coatings on shale fragments; very strongly acid.

The solum ranges from 36 to 60 inches in thickness. Depth to paralithic contact ranges from 40 to 60 inches. Depth to bedrock is more than 5 feet. The soil is medium acid to very strongly acid, unless limed. Coarse fragments make up 0 to 15 percent of the solum and 20 to 60 percent of the substratum. The coarse fragments consist of angular red shale and rounded quartzite.

The A horizon has hue of 2.5YR through 7.5YR, value of 4 or 5, and chroma of 4 or 6. If the A1 horizon is less than 4 inches thick, it commonly has value and chroma of less than 4.

The Bt horizon has hue of 10R through 5YR, value of 3 or 4, and chroma of 4 through 8. Hue of 5YR is restricted to the upper part of the Bt horizon. The Bt horizon is clay, silty clay, or silty clay loam.

The C horizon has hue of 10R or 2.5YR, value of 3 or 4, and chroma of 4 or 6. It is shaly or very shaly silty clay, silty clay loam, or silt loam.

Turbeville Series

Soils of the Turbeville series are very deep and well drained. They formed in old alluvium that is at a higher elevation and commonly some distance from the present flood plains. These soils are on uplands in the Piedmont. Slopes are 2 to 15 percent.

Turbeville soils commonly are near Hiwassee, Masada, and Nason soils. They have a thicker solum than these soils, except for Masada soils. Turbeville soils have a redder subsoil than Masada and Nason soils.

Typical pedon of Turbeville loam, 2 to 7 percent slopes; in cropland, 18 miles south of Charlottesville, 1 mile north of Hatton at the end of State Highway 812 and about 65 yards south of a farmhouse:

Ap—0 to 12 inches; dark brown (10YR 4/3) loam; moderate fine and medium granular structure; very friable; many fine roots; 2 percent pebbles 1/4 to 1/2 inch in diameter; medium acid; abrupt smooth boundary.

B1t—12 to 16 inches; reddish brown (5YR 4/4) clay loam; moderate fine subangular blocky structure; friable, sticky and slightly plastic; many fine roots; few thin clay films on faces of peds; 1 percent rounded quartz pebbles 1/4 to 1 inch in diameter; strongly acid; gradual smooth boundary.

B21t—16 to 24 inches; yellowish red (5YR 4/6) clay; moderate fine and medium subangular blocky structure; firm, sticky and plastic; common fine roots; common thin clay films on faces of peds; 1 percent rounded quartz pebbles 1/4 to 1/2 inch in diameter; few fine dark brown concretions; strongly acid; clear smooth boundary.

B22t—24 to 45 inches; dark red (2.5YR 3/6) clay; strong fine and medium subangular blocky structure; firm, sticky and plastic; many thin clay films on faces of peds; 1 percent quartz pebbles 1/4 to 1/2 inch in diameter; strongly acid; gradual smooth boundary.

B23t—45 to 56 inches; dark red (2.5YR 3/6) clay; strong fine subangular blocky structure; firm, very sticky and plastic; many thin and medium clay films on faces of peds; 2 percent quartz pebbles 1/4 to 1/2 inch in diameter; very strongly acid; gradual smooth boundary.

B3t—56 to 70 inches; weak red (10YR 4/4) clay loam; few fine distinct yellowish red (5YR 4/6) and strong brown (7.5YR 5/6) mottles; moderate fine subangular blocky structure; friable, sticky and slightly plastic; few thin and medium clay films on faces of peds; 10 percent rounded quartz pebbles 1/2 to 1 inch in diameter; very strongly acid.

The solum is more than 60 inches thick. The depth to bedrock is more than 5 feet. The soil is strongly acid or very strongly acid, unless limed. Quartz, granite, gneiss, and greenstone pebbles 1/4 inch to 3 inches in diameter make up 0 to 15 percent of the solum. In some pedons, a stone line is in the lower part of the solum.

The A horizon has hue of 7.5YR through 10YR, value of 4 or 5, and chroma of 2 through 4.

The B1 horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 through 8. It is clay loam or sandy clay loam.

The B2t horizon has hue of 5YR through 10R, value of 3 through 5, and chroma of 4 through 8. The Bt horizon is clay, clay loam, or sandy clay loam

Tusquitee Series

Soils of the Tusquitee series are deep and well drained. They formed in loamy colluvium derived from granite, granodiorite, and granite gneiss. These soils are on the outlying mountains in the Blue Ridge. Slope ranges from 2 to 25 percent.

Tusquitee soils commonly are near Ashe, Braddock, Chester, Hayesville, Parker, Porters, and Thurmont soils. They have more clay in the subsoil than Ashe and Parker soils, and have a thick, dark surface layer that Ashe, Braddock, Hayesville, Parker, and Thurmont soils do not have. Tusquitee soils have less clay in the subsoil than Braddock and Hayesville soils and have a deeper solum than Ashe, Parker, and Porters soils.

Typical pedon of Tusquitee loam in an area of Tusquitee stony loam, 7 to 15 percent slopes; in apple orchard, about 8 miles west-southwest of Charlottesville, 1.75 miles south-southeast of the junction of State Highways 694 and 693, 750 yards south-southeast of the Miller School dam:

Ap1—0 to 5 inches; very dark brown (10YR 2/2) loam; weak very fine granular structure; very friable, nonsticky and nonplastic; many fine and medium roots; 2 percent granite pebbles less than 1 inch in diameter; slightly acid; clear smooth boundary.

Ap2—5 to 9 inches; dark brown (7.5YR 3/2) loam; weak fine granular structure; very friable, nonsticky and nonplastic; common fine and medium roots; 2 percent granite pebbles less than 1 inch in diameter; slightly acid; abrupt smooth boundary.

B1—9 to 14 inches; brown (7.5YR 4/4) loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; common fine and medium roots; 2 percent pebbles of granite less than 1 inch in diameter; medium acid; clear smooth boundary.

B21t—14 to 28 inches; strong brown (7.5YR 4/6) clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; few thin clay films on faces of peds; 2 percent cobbles of granite; medium acid; clear smooth boundary.

B22t—28 to 35 inches; brown (7.5YR 4/4) gravelly clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; few thin clay films on faces of peds; 10 percent pebbles and 5 percent cobbles of granite, quartz, and granodiorite; medium acid; gradual wavy boundary.

B3t—35 to 45 inches; strong brown (7.5YR 4/6) very cobbly clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; few thin clay films on faces of peds; 20 percent pebbles and 40 percent cobbles of granite, quartz, and granodiorite; medium acid; gradual wavy boundary.

C1—45 to 53 inches; strong brown (7.5YR 4/6) very gravelly sandy loam; common medium distinct dark yellowish brown (10YR 3/4) mottles; massive; firm in place, nonsticky and nonplastic; few fine and medium roots; 55 percent pebbles of granite, quartz, and granodiorite; medium acid; clear smooth boundary.

C2—53 to 63 inches; dark yellowish brown (10YR 3/4) very cobbly sandy loam; massive; firm in place, nonsticky and nonplastic; few fine and medium roots; 15 percent pebbles and 30 percent cobbles of granite, quartz, and granodiorite; medium acid.

The solum is more than 40 inches thick. The depth to bedrock is more than 5 feet. Rock fragments of granite, quartz, granodiorite, or granite gneiss range from 0 to 15 percent in the A, B1, and B2 horizons and range from 0 to 60 percent in the B3 and C horizons. The solum is strongly acid or medium acid, unless limed.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 2 or 3.

The B1 horizon, if present, has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 4 or 6. It is loam or sandy clay loam. The B2t horizon has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 4 through 8. It is sandy clay loam, clay loam, or gravelly analogues of these textures. The B3 horizon is similar to the B2t horizon in color and texture but is very gravelly, cobbly, or very cobbly.

The C horizon has hue of 7.5YR or 10YR, value of 3 through 6, and chroma of 2 through 6. It is loam, sandy loam, and the very gravelly, cobbly, or very cobbly analogues of these textures.

Udorthents

Udorthents consist of deep, somewhat excessively drained, well drained, and moderately well drained soils along drainageways, and disturbed soils and soil materials on ridgetops and side slopes around areas used for quarries or urban development. These soils formed in loamy and clayey fill material derived from cuts over acidic or basic crystalline rock and in areas where material has been removed. Slope commonly is 2 to about 25 percent, but ranges to 60 percent or more in some areas.

Udorthents commonly are near Ashe, Catoctin, Chester, Cullen, Elioak, Hayesville, Manteo, Myersville, Nason, and Rabun soils. Unlike these soils, Udorthents commonly are made up of disturbed, mixed material.

Because of the variability of Udorthents, a typical pedon is not described. The thickness of the fill material and the depth to bedrock are more than 40 inches. The soil is strongly acid or extremely acid throughout. Pebbles, cobbles, and stones make up from 10 to 60 percent of some pedons.

The surface layer is multicolored in shades of brown, red, yellow, black, and gray. It is loam to clay loam or the gravelly or very gravelly analogues of these textures. The subsurface layer ranges from 16 to more than 60 inches in thickness.

The material under the surface layer has colors similar to those of the surface layer. It is loam to clay or the gravelly or very gravelly analogues of these textures.

The material beneath the fill layer is quite variable. It ranges from material similar to that of the adjacent soils to hard rock.

Unison Series

Soils of the Unison series are deep and well drained. They formed in colluvium washed from uplands underlain by greenstone. These soils are on mountains in the Blue Ridge. Slope ranges from 2 to 25 percent.

Unison soils commonly are near Dyke, Lew, Myersville, and Starr soils. They are not so red as Dyke soils. Unison soils have more clay in the subsoil than Lew, Myersville, and Starr soils.

Typical pedon of Unison silt loam, 2 to 7 percent slopes; in pasture, about 9 miles east-northeast of Charlottesville, 1 mile north of Cismont, 3/4 mile west of State Highway 231 and 2/3 mile northeast of State Highway 600:

Ap—0 to 6 inches; dark brown (7.5YR 4/4) silt loam; weak medium granular structure; friable; many fine roots; slightly acid; clear smooth boundary.

B1—6 to 12 inches; yellowish red (5YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; slightly acid; gradual smooth boundary.

B21t—12 to 24 inches; reddish brown (5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm, sticky and plastic; few fine and medium roots; thin patchy clay films on faces of peds; medium acid; gradual smooth boundary.

B22t—24 to 50 inches; reddish brown (5YR 4/4) clay; strong fine and medium subangular blocky structure; firm, sticky and plastic; common thin continuous clay films on faces of peds; few black mineral concretions; 2 percent weathered greenstone fragments as much as 2 inches in diameter; medium acid; gradual smooth boundary.

B3—50 to 58 inches; yellowish red (5YR 4/6) silty clay loam; weak fine and medium subangular blocky structure; friable, sticky and slightly plastic; few black mineral concretions; 5 percent weathered greenstone fragments as much as 2 inches in diameter; medium acid; clear wavy boundary.

C—58 to 60 inches; strong brown (7.5YR 5/6) cobbly clay loam; massive; friable, sticky and slightly plastic; 25 percent greenstone cobbles as much as 6 inches in diameter; medium acid.

The solum is 30 to 60 inches thick. The depth to bedrock is more than 5 feet. Greenstone pebbles and cobbles range from 0 to 35 percent throughout the pedon. The soil is strongly acid or medium acid throughout, unless limed. Lithologic discontinuities are common.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 through 6. It is silt loam or loam.

The B horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 3 through 8. It is clay loam, silty clay loam, or clay.

The C horizon is mostly strong brown cobbly clay loam.

Wahee Series

Soils of the Wahee series are deep and somewhat poorly drained. They formed in clayey alluvium. These soils are along larger streams in the Piedmont. Slope is 0 to 4 percent.

Wahee soils commonly are near Dogue, McQueen, and Wehadkee soils. They are more poorly drained than Dogue and McQueen soils. Wahee soils are not so poorly drained as Wehadkee soils.

Typical pedon of Wahee silt loam; in pasture, about 8 miles southeast of Charlottesville, about 2 miles south of U.S. Highway 250 and State Highway 808, 350 yards north of the Rivanna River:

Ap1—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

Ap2—7 to 9 inches; grayish brown (2.5Y 5/2) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

B1—9 to 13 inches; light yellowish brown (2.5Y 6/4) clay loam; common medium distinct brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable, slightly sticky and nonplastic; many fine roots; strongly acid; gradual smooth boundary.

B21tg—13 to 25 inches; light brownish gray (2.5Y 6/2) clay loam; many coarse distinct light olive brown (2.5Y 5/4) mottles; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22tg—25 to 40 inches; light gray (10YR 6/1) clay; common medium distinct light olive gray (5Y 6/2) and many fine distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm, sticky and slightly plastic; thin continuous clay films on faces of peds; strongly acid; gradual smooth boundary.

B3tg—40 to 60 inches; gray (N 6/0) clay loam; many coarse prominent yellowish brown (10YR 5/8) and light olive brown (2.5Y 5/6) mottles; weak coarse subangular blocky structure; firm, slightly sticky and slightly plastic; few thin clay films on faces of peds; strongly acid.

The solum is more than 40 inches thick. The depth to bedrock is more than 5 feet. The soil is very strongly acid or strongly acid, unless limed. Rounded quartz pebbles make up 0 to 10 percent of the solum.

The A horizon has hue of 10YR or 2.5Y, value of 3 through 5, and chroma of 1 or 2.

The B1 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 through 6. It is sandy clay loam or clay loam. The B2t horizon is neutral or has hue of 10YR through 5Y, value of 4 through 7, and chroma of 2 or less. It is mottled. The B2t horizon is clay, clay loam, silty clay loam, or silty clay. The B3 horizon is neutral or has hue of 10YR through 5Y, value of 5 through 7, and chroma of 0 through 2, and is mottled. It is clay loam, sandy clay loam, or silty clay loam.

The C horizon, if present, has colors similar to those of the B3 horizon. It is loam, sandy clay loam, or clay loam.

Watt Series

Soils of the Watt series are moderately deep and somewhat excessively drained. They formed in the weathered products of graphitic schist. These soils are on uplands in the Piedmont. Slope ranges from 7 to 45 percent.

Watt soils commonly are near Albemarle, Elioak, Glenelg, and Hazel soils. They have less clay and are more excessively drained than Albemarle, Elioak, and Glenelg soils. Watt soils are darker and have more coarse fragments than Hazel soils.

Typical pedon of Watt channery silt loam, 7 to 15 percent slopes; in hardwood forest, 12 miles northeast of Charlottesville, about 170 yards west of State Highway 644, 1/2 mile north of State Highway 641:

O1—1 inch to 0; hardwood leaves and twigs.

A11—0 to 3 inches; very dark gray (5Y 3/1) channery silt loam; moderate fine granular structure; very friable; many fine roots; 20 percent thin weathered schist and quartz fragments; very strongly acid; clear smooth boundary.

A12—3 to 10 inches; dark olive gray (5Y 3/2) channery silt loam; moderate fine granular structure; very friable; many fine and medium roots; 25 percent thin weathered schist and quartz fragments; very strongly acid; clear smooth boundary.

B—10 to 18 inches; olive gray (5Y 4/2) very channery silt loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine and medium roots; 40 percent thin weathered schist fragments; very strongly acid; gradual smooth boundary.

C—18 to 28 inches; multicolored olive gray (5Y 4/2), black (5Y 2/1), and light olive brown (2.5Y 5/4) very channery silt loam; massive; firm in place; 55 percent coarse fragments of weathered schist; very strongly acid; clear wavy boundary.

R—28 inches; partly weathered black (10YR 2/1) graphitic schist.

The solum is 10 to 20 inches thick. The depth to bedrock ranges from 20 to 40 inches. The soil is extremely acid or very strongly acid, unless limed. Angular quartz pebbles make up 0 to 5 percent of the solum. Weathered schist fragments make up 15 to 35 percent of the A horizon and 35 to 70 percent of the B and C horizons.

The A horizon has hue of 2.5YR through 5Y, value of 2 or 3, and chroma of 1 or 2.

The B horizon is neutral or has hue of 10YR through 5Y, value of 3 or 4, and chroma of 2 or less. It is silt loam or silty clay loam in the fine earth fraction.

The C horizon is strongly weathered graphitic schist. It is neutral, or it has hue of 7.5YR or 5YR, value of 3 or 4, and chroma of 0 through 2. It is channery or very channery silt loam. In some pedons, the C horizon grades to a Cr horizon.

Wedowee Series

Soils of the Wedowee series are deep and well drained. They formed in the weathered products of granite and granite gneiss. These soils are on uplands in the Piedmont. Slope is 2 to 15 percent.

Wedowee soils commonly are near Cullen, Elioak, Glenelg, Louisburg, and Pacolet soils. They have a thinner solum than Cullen and Elioak soils and have yellower hues in the subsoil than Pacolet soils. Wedowee soils have more clay in the subsoil than Glenelg and Louisburg soils.

Typical pedon of Wedowee sandy loam, 2 to 7 percent slopes; in hardwood forest, about 5 miles north of Charlottesville, about 1/2 mile south of the junction of State Highways 643 and 743, 2/3 mile west of U.S. Highway 29:

O—1 inch to 0; very dark gray (10YR 3/1) partially decomposed forest litter; clear smooth boundary.

A1—0 to 1 inch; dark grayish brown (10YR 4/2) sandy loam; weak very fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2—1 to 7 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; very friable; many fine roots; 2 percent quartz pebbles as much as 1 inch in diameter; very strongly acid; gradual smooth boundary.

B1—7 to 11 inches; yellowish brown (10YR 5/6) sandy clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium roots; many fine and medium pores; 2 percent quartz pebbles as much as 1 inch in diameter; strongly acid; gradual smooth boundary.

B21t—11 to 15 inches; yellowish brown (10YR 5/6) clay loam; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many fine and medium pores; few thin patchy clay films; strongly acid; gradual smooth boundary.

B22t—15 to 26 inches; yellowish red (5YR 5/6) clay; strong fine and medium subangular blocky structure; hard, firm, slightly sticky and plastic; few medium and large roots; few thin continuous clay films; few fine flakes of mica; strongly acid; gradual smooth boundary.

B3—26 to 30 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium distinct dark yellowish brown (10YR 3/4) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few large roots; common fine flakes of mica; 2 percent quartz pebbles as much as 1 inch in diameter; 10 percent weathered granite fragments as much as 2 inches in length; strongly acid; gradual wavy boundary.

C—30 to 42 inches; multicolored yellowish brown (10YR 5/4), strong brown (7.5YR 5/6), and white (10YR 8/1) sandy clay loam; massive; friable; common fine flakes of mica; 85 percent granite saprolite that crushes easily; 2 percent quartz pebbles as much as 1 inch in diameter; strongly acid; gradual wavy boundary.

Cr—42 to 60 inches; multicolored yellowish brown (10YR 5/4), strong brown (7.5YR 5/6), and white (10YR 8/1) granite saprolite that crushes easily to sandy clay loam; rock structure; friable; strongly acid.

The solum is 20 to 40 inches thick. The depth to bedrock is more than 5 feet. The soil is strongly acid or very strongly acid, unless limed. Angular quartz pebbles, 1/4 inch to 2 inches in diameter, and weathered rock fragments make up 0 to 15 percent of the solum. Few to common fine flakes of mica are in one or more horizons.

The A horizon has hue of 7.5YR or 10YR, value of 3 through 6, and chroma of 2 through 6. It is sandy loam, fine sandy loam, loam, or the gravelly analogues of these textures.

The B1 horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. It is loam or sandy clay loam. The B2t horizon has hue of 5YR through 10YR, value of 5 or 6, and chroma of 6 or 8. It is sandy clay loam, clay loam, loam, or clay. The B3 horizon has colors similar to those of the B2t horizon and commonly is mottled in shades of red, yellow, or brown. It is clay loam, sandy clay loam, or loam.

The C horizon commonly is mottled in shades of red, yellow, brown, or white. It is clay loam, sandy clay loam, loam, or sandy loam with as much as 90 percent saprolite. A Cr horizon is present in some pedons.

Wehadkee Series

Soils of the Wehadkee series are deep and poorly drained. They formed in stratified alluvial sediment. Wehadkee soils are along streams in the Piedmont and Blue Ridge. They are subject to occasional flooding. Slope is 0 to 2 percent.

Wehadkee soils commonly are near Chewacla, Riverview, and Wahee soils. They are more poorly drained than these soils. Wehadkee soils have less clay in the subsoil than Wahee soils.

Typical pedon of Wehadkee silt loam; in pasture, about 19 miles south of Charlottesville, 1/2 mile east of Warren Railroad station, 70 yards south of the railroad tracks along the James River:

Ap—0 to 10 inches; grayish brown (10YR 5/2) silt loam; few fine distinct yellowish brown (10YR 5/6) mottles; weak fine granular structure; very friable; many fine roots; few fine flakes of mica; slightly acid; abrupt smooth boundary.

B1g—10 to 16 inches; dark gray (10YR 4/1) silty clay loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; friable; few fine and medium roots; few fine flakes of mica; medium acid; clear smooth boundary.

B21g—16 to 24 inches; gray (10YR 5/1) silty clay loam; common medium prominent reddish yellow (7.5YR 6/6) mottles; weak very fine subangular blocky structure; friable; common fine flakes of mica; medium acid; gradual smooth boundary.

B22g—24 to 43 inches; gray (N 5/0) silty clay loam; common medium prominent strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine flakes of mica; medium acid; gradual smooth boundary.

B3g—43 to 52 inches; gray (N 5/0) silt loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine flakes of mica; medium acid; clear wavy boundary.

Cg—52 to 62 inches; gray (N 5/0) sandy loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; massive; friable; 10 percent pebbles as much as 2 inches in diameter; common fine flakes of mica; medium acid.

The solum ranges from 35 to 60 inches in thickness. The depth to bedrock is more than 5 feet. The soil is strongly acid to slightly acid, unless limed.

The A horizon has hue of 10YR or 2.5Y, value of 4 through 6, and chroma of 1 through 3.

The B horizon is neutral or has hue of 10YR, value of 4 through 6, and chroma of 0 through 2. It has mottles in shades of yellow and brown. This horizon is clay loam, silty clay loam, silt loam, or loam.

The C horizon, if present, is neutral or has hue of 10YR or 2.5Y, value of 5 through 7, and chroma of 0 through 2. It has stratified layers of sand and gravel in some pedons. This horizon is loam, sandy loam, or silt loam.

Worsham Series

Soils of the Worsham series are deep and poorly drained. They formed in clayey alluvium and colluvium. These soils are in the Piedmont. Slope ranges from 2 to 7 percent.

Worsham soils commonly are near Abell, Belvoir, Lignum, Meadowville, and Starr soils. They are more poorly drained and have more clay in the subsoil than these soils.

Typical pedon of Worsham loam, 2 to 7 percent slopes; in pasture, about 10 miles northwest of Charlottesville, 1/3 mile south of the junction of State Highways 688 and 671 and 70 yards east of 671:

A1—0 to 4 inches; dark grayish brown (2.5Y 4/2) loam; common fine prominent yellowish red (5YR 5/8) mottles in root channels; weak medium granular structure; friable, slightly sticky and slightly plastic; many fine and medium roots; slightly acid; abrupt smooth boundary.

A2—4 to 9 inches; grayish brown (2.5Y 5/2) loam; common fine prominent yellowish red (5YR 5/8) mottles in root channels; weak medium granular structure; friable, slightly sticky and slightly plastic; many fine and medium roots; slightly acid; abrupt smooth boundary.

B1tg—9 to 13 inches; grayish brown (2.5Y 5/2) clay loam; common fine prominent brown (7.5YR 5/8) mottles; weak medium and coarse subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium roots; thin patchy clay films on faces of peds; strongly acid; clear smooth boundary.

B21tg—13 to 20 inches; light gray (5Y 6/1) clay; common medium prominent strong brown (7.5YR 5/8) and common fine prominent red (2.5YR 4/6) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; firm, slightly sticky and plastic; common fine and medium roots; thin continuous clay films on faces of peds; strongly acid; clear smooth boundary.

B22tg—20 to 29 inches; light gray (5Y 6/1) clay; common medium prominent red (2.5YR 4/8) and few medium prominent strong brown (7.5YR 5/8) mottles; strong medium and coarse prismatic structure parting to strong medium angular blocky; firm, sticky and plastic; common fine and medium roots on faces of prisms; thick continuous clay films on faces of peds; strongly acid; clear smooth boundary.

B23tg—29 to 39 inches; gray (N 5/0) clay; common medium prominent red (2.5YR 4/8) mottles; moderate medium and coarse prismatic structure parting to strong thick and very thick platy; firm, sticky and plastic; few fine and medium roots on faces of prisms; thick continuous clay films on faces of peds; strongly acid; gradual wavy boundary.

B3g—39 to 54 inches; light gray (N 6/0) sandy clay; few medium prominent brownish yellow (10YR 6/8) mottles; weak medium and coarse prismatic structure; firm, sticky and slightly plastic; 2 percent quartz pebbles less than 1/2 inch in diameter; strongly acid; clear smooth boundary.

Cg—54 to 60 inches; light gray (N 7/0) sandy clay loam; massive; friable, slightly sticky and slightly plastic; 5 percent quartz pebbles less than 1 inch in diameter; very strongly acid.

The solum ranges from 40 to more than 60 inches in thickness. The depth to bedrock is more than 5 feet. The soil is very strongly acid or strongly acid, unless limed. Quartz pebbles make up 0 to 10 percent of the solum.

The A horizon has hue of 10YR or 2.5Y, value of 3 through 6, and chroma of 1 or 2. It is loam or silt loam.

The B1 and B2 horizons are neutral or have hue of 10YR through 5Y, value of 5 or 6, and chroma of 0 through 2. These horizons have common mottles. The B1 horizon is sandy clay loam or clay loam. The B2 horizon is clay, sandy clay, or clay loam. The B3 horizon is neutral or has hue of 10YR or 2.5Y, value of 5 through 7, and chroma of 0 through 2. It has common mottles. It is clay loam, sandy clay loam, or sandy clay.

The C horizon is typically gray or light gray. It is sandy clay loam or clay loam.

Formation of the Soils

Soils are the products of soil-forming processes acting upon materials altered or deposited by geologic forces. The five soil-forming factors that contribute to the differences among soils are climate, parent material, plant and animal life, relief, and time. Climate and plant and animal life, particularly vegetation, are the active forces in soil formation. Their effect on the parent material is modified by relief and by the length of time the parent material has been in place. In some places one factor dominates in the formation of soil and determines most of its properties, but normally the interaction of all factors determines the kind of soil that develops in any given place.

Factors of Soil Formation

Soils are formed as a result of physical weathering of parent rock, chemical weathering of rock fragments and organic matter, the transfer of materials, and gains and losses of organic matter and minerals.

Soil formation begins with physical weathering. Large pieces of rock are broken into smaller pieces by frost action and other forces. The rocks and rock fragments are further reduced to the size of particles of sand and silt. These particles form an unconsolidated layer of material in which plants can grow. Organic matter is added to the mineral material when plants and animals die.

The rock fragments and the organic matter are chemically weathered by solution, carbonation, oxidation, reduction, and the action of weak acids. By chemical processes, iron, aluminum, calcium, and other elements are released in a form that plants can use.

The transfer of materials from one part of the soil to another is common in most soils. Organic matter is suspended in solution and moved. Calcium and other elements are leached from the surface layer. To some extent, these elements are held by the clay in the subsoil or lower part of the profile, but some is leached out of the soil. Bases are absorbed by plant roots and stored in the stems, leaves, and twigs of plants. When the plants die and decay, they return these elements to the soil. In most of the soils of the county, the translocation of clay minerals and the forming of clay minerals in-place, have had a strong influence on the development of soil horizons. As the soil develops, it gradually forms characteristics that are recognizable and that distinguish one layer from another.

The results of the soil-forming factors can be distinguished by the different layers, or soil horizons, seen in a soil profile. The soil profile extends from the surface of the land downward to materials that are little altered by the soil-forming processes.

Most soils contain three major horizons called A, B, and C. These major horizons may be further subdivided by the use of subscripts and letters to indicate changes within one horizon. An example would be a B2t horizon that represents a layer within the B horizon with translocated clay eluviated from the A horizon.

The A horizon is the surface layer. It is the layer with the largest accumulation of organic matter, called an A1 horizon. It is also the layer of maximum leaching or eluviation of clay and iron. When considerable leaching has taken place, an A2 horizon is formed. The A2 horizon of some of the soils in Albemarle County shows light colors resulting from the loss of iron, aluminum, and clay minerals. A few soils have an A3 horizon that is transitional between the A and B horizons.

The B horizon is underneath the A horizon and is commonly called the subsoil. It is the horizon of maximum accumulation, or illuviation, of clay, iron, aluminum, or other compounds leached from the A horizon. In some soils the B horizon is formed by alteration in place rather than from illuviation. The alteration may be due to oxidation and reduction of iron or the weathering to clay minerals. The B horizon is generally firmer, has more clay, has more pronounced structure, and has browner or redder colors than the A2 horizon. Most young soils have not developed a B horizon.

The C horizon is below the A or B horizons. It consists of materials that are little altered by the soil-forming processes, but may be modified by weathering.

Climate

Climate is important in the formation of soils because it influences the weathering of minerals. Weathering is more rapid under a warm, humid climate than it is under a cold or a dry climate. The type and abundance of vegetation are influenced by the amount of precipitation and the length of the growing season. Precipitation also affects the translocation and leaching of some products of weathering. Hard rains and frequent showers may cause excessive erosion.

The climate typical of this county causes intense leaching of soluble material and colloidal materials downward in many soils. Examples are the Cullen, Davidson, Hayesville, and Tatum soils. Because the soils are frozen for only short periods and only to a shallow depth, the amount of weathering and the translocation of material are further increased. Leaching has kept free carbonates of lime from accumulating in the soils, although calcium is a part of the mineral components of some of the underlying rocks. Practically all of the soils are acid.

Weathering breaks down the rocks so that other forces of soil formation have a chance to act. Most of the upland soils have well developed profile features.

The climate varies locally as a result of differences in relief, in the degree and direction of slope, and in the position of the slope on the landscape. These factors account for significant differences among the soils in the mountain areas of the county and in the Piedmont. A more detailed discussion of the climate of Albemarle County is given in the section "Climate."

Parent Material

The two broad classes of parent material in Albemarle County are residual material and transported material. Residual material has weathered in-place from the underlying rock. The transported materials—colluvium and alluvium—have been carried by water, or moved by gravity, or both of these and laid down as unconsolidated deposits of clay, silt, sand, and larger fragments of rock. The characteristics of residual material are related directly to the characteristics of the underlying rocks. Those of the transported material are related to the characteristics of the soils or rocks from which this material was washed or from which it moved.

The rocks in Albemarle County are of the Precambrian Era or of the Lower Cambrian, Ordovician, and Triassic Periods, but mainly Precambrian. Igneous, metamorphic, and sedimentary rocks are in the county, and all have been sources of parent material.

The igneous rocks include amphibolite, granite, gabbro, diorite, greenstone, and diabase. These rocks are the source of parent material for the Davidson, Hayesville, Louisburg, and Orange soils.

The metamorphic rocks include schist, marble, phyllite, gneiss, soapstone, quartzite, and slate. They are the source of parent material for the Elioak, Nason, and Watt soils.

The sedimentary rocks include siltstone, sandstone, conglomerate, and shale. The Manassas, Rapidan, and Totier soils formed in material that weathered from sedimentary rocks. The Chewacla, Riverview, and Wehadkee soils formed in transported material on first bottoms. The Dogue, Masada, and Turbeville soils formed in transported material on stream terraces. The Dyke, Lew, and Tusquitee soils formed in colluvium.

The characteristics of the underlying rocks and of the parent material strongly influence the kinds of changes that take place during weathering. Because of differences in these characteristics the rates of weathering vary. For example, serecitic schist, which is resistant to weathering, underlies the Manteo soils and is within a depth of 2 feet. Granite gneiss, in comparison, weathers deeply and is the parent material of the deep Hayesville and Cullen soils.

Many characteristics of a soil can be traced directly to the parent material. These include the texture, mineral content, kind and quantity of clay, natural fertility, and soil reaction.

Plant and Animal Life

Biologic forces have an important role in the formation of the soils in Albemarle County. Trees, shrubs, grasses, and other herbaceous plants and micro-organisms, earthworms, and various other forms of plant and animal life are active agents in the soil forming-processes. The kinds of plants and animals that live on and in the soils are determined by environmental factors including climate, parent material, relief, and age of the soil. Where the variation in either climate or vegetation is great enough to be significant, the soil varies accordingly.

Plants supply organic matter to the soil, and they transfer plant nutrients from the lower horizons to the upper horizons. Organic matter decomposes and is mixed into the soils by the action of micro-organisms and earthworms or by chemical reaction. The rate of decomposition in Albemarle County is fairly rapid because of the favorable temperature, generally abundant moisture, and favorable population of micro-organisms in the soil. Organic matter has not accumulated in the soils of Albemarle County to any great extent, but it ranges from 1 to 3 percent by volume. The highest contents of organic matter are generally in the mountain areas.

The original vegetation in this county was a dense forest of hardwoods, or of hardwoods and pines. The density of the stands, the proportion of different species, and the kinds of ground cover varied to some extent. The forests were so nearly uniform that this factor would not likely account for all the differences in soil properties throughout the county. Deciduous trees generally have deep roots and their leaves vary in content of plant nutrients, but they generally return more bases and more phosphorus to the soil than do the needles of coniferous trees.

As agriculture developed in Albemarle County, the activity of man influenced soil formation. Forests were cleared, and new kinds of plants were introduced. Cultivation, artificial drainage, and the application of lime and fertilizers changed some characteristics of the soils in the county. Man's activity has caused an accelerated loss of soil through erosion. Because of this loss, the soil in many areas is thinner and less productive than before it was cleared. Some of the material washed from sloping areas has been deposited in depressions and on flood plains. The Buncombe and Riverview soils formed in such material. These soils are young or immature.

Relief

Relief, or lay of the land, affects the formation of soils by causing differences in internal drainage, surface runoff, soil temperature, and geologic erosion. It can alter the effects of parent material on the development of soils to the extent that several different kinds of soils may form from the same kind of parent material.

In this county, slopes range from nearly level to very steep. In the steeper areas, the effects of relief are rapid surface runoff, little percolation of water through the soil, little movement of clay, little translocation of soil bases, and erosion that removes weathered rock and soil materials as rapidly as they are formed. The Ashe and Monteo soils formed in this kind of environment and have weakly expressed horizons. Gently sloping and strongly sloping areas are well drained, and erosion is generally slight. The soils in such areas are mature and have well defined horizons; they include the Cullen, Davidson, Hayesville, and Tatum soils. Low flat areas or depressions are wet, are commonly ponded, and have restricted drainage. Mottled soils, such as the Wahee and Worsham soils, formed in these depressional areas. Low areas and flood plains are wet because they are flooded frequently and have a seasonal high water table. The Wahadkee soils are in such areas, and they are gray and mottled because of the seasonal high water table. Relief also affects the amount of radiant energy absorbed by soils, and this energy, in turn, affects the native vegetation.

Time

Time is important in the formation of soils. If the factors of soil formation have operated long enough to form well defined, genetically related horizons and a soil is in equilibrium with its environment, the soil is considered to be mature. The Cullen, Hayesville, and Turbeville soils are considered to be mature. However, if the soil shows little or no horizonation, it is considered to be immature or young. The Riverview and Toccoa soils are considered to be immature. Many soils range in maturity between these extremes.

Soils that formed in the same kind of parent material but in areas of different topography do not necessarily mature in the same length of time. On steep slopes, for example, well defined horizons have not had time to develop in the Manteo soils, because soil material has been removed by erosion almost as rapidly as it has formed. In sloping areas there is time for soil development; the Nason soils in sloping areas are examples.

Soils formed in material that is resistant to weathering require more time to reach maturity than soils formed in easily weathered material. On flood plains the development of genetically related horizons may be slowed or prevented if alluvium is being deposited frequently. An example of this is the Buncombe soils.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a fragment.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. A form of noninversion tillage that retains protective amounts of residue mulch on the soil surface throughout the year.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Controlled grazing. Postponing grazing or arresting grazing for a prescribed period.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

Excess sulfur (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist, 6 to 15 inches (15 to 37.5 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor filter (in tables). Because of rapid permeability the soil may not adequately filter effluent from a waste disposal system.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Saprolite (soil science). Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to insure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stockpiling plant growth. Allowing plant growth, generally tall fescue pasture, to accumulate in fall for use as pasture in winter.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, are in soils in extremely small amounts. They are essential to plant growth.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1949-78 at Charlottesville, Virginia]

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days[1]	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	44.6	26.5	35.6	73	5	72	3.18	1.82	4.27	6	6.4
February---	47.1	28.5	37.8	73	7	78	3.07	1.35	4.06	6	6.3
March------	55.9	35.5	45.7	84	18	229	4.01	2.71	5.57	7	4.9
April------	68.2	45.7	57.0	92	28	506	3.15	2.11	4.59	6	0.4
May--------	75.9	54.7	65.3	92	37	782	4.25	2.56	5.32	7	0.0
June-------	82.8	62.6	72.7	97	46	981	3.74	2.07	5.39	6	0.0
July-------	87.0	66.6	76.8	99	57	1,138	4.64	2.61	6.31	7	0.0
August-----	85.6	65.5	75.6	97	54	1,102	4.65	2.46	6.49	7	0.0
September--	79.3	59.3	69.3	96	42	879	3.92	1.85	5.75	6	0.0
October----	68.9	48.9	58.9	87	28	564	4.18	1.54	7.16	5	0.0
November---	57.9	38.9	48.4	80	17	278	3.16	1.78	4.92	5	1.5
December---	46.9	29.8	38.0	71	11	90	3.53	2.18	5.00	6	4.0
Yearly											
Average--	66.8	47.0	56.9	---	---	---	---	---	---	---	---
Extreme--	---	---	---	107	-2	---	---	---	---	---	---
Total----	---	---	---	---	---	6,698	45.48	25.04	64.83	56	23.1

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[1] A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1949-78 at Charlottesville, Virginia]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 25	March 30	April 15
2 years in 10 later than--	March 24	March 28	April 13
5 years in 10 later than--	March 14	March 20	April 3
First freezing temperature in fall:			
1 year in 10 earlier than--	November 18	October 29	October 26
2 years in 10 earlier than--	November 22	November 4	October 29
5 years in 10 earlier than--	December 2	November 10	November 8

TABLE 3.--GROWING SEASON

[Recorded in the period 1949-78 at Charlottesville, Virginia]

Probability	Length of growing season if daily minimum temperature is--		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	241	220	195
8 years in 10	246	225	198
5 years in 10	266	232	214
2 years in 10	282	251	230
1 year in 10	283	255	231

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
1B	Abell silt loam, 2 to 7 percent slopes	580	0.1
2B	Albemarle fine sandy loam, 2 to 7 percent slopes	400	0.1
2C	Albemarle fine sandy loam, 7 to 15 percent slopes	980	0.2
2D	Albemarle fine sandy loam, 15 to 25 percent slopes	670	0.1
3C	Albemarle very stony fine sandy loam, 7 to 15 percent slopes	410	0.1
3D	Albemarle very stony fine sandy loam, 15 to 25 percent slopes	570	0.1
3E	Albemarle very stony fine sandy loam, 25 to 45 percent slopes	250	0.1
4B	Ashe loam, 2 to 7 percent slopes	210	*
4C	Ashe loam, 7 to 15 percent slopes	1,230	0.3
4D	Ashe loam, 15 to 25 percent slopes	9,420	1.9
4E	Ashe loam, 25 to 45 percent slopes	14,480	3.0
5B	Belvoir loam, 2 to 7 percent slopes	900	0.2
6	Bermudian silt loam	350	0.1
7B	Braddock loam, 2 to 7 percent slopes	6,180	1.3
7C	Braddock loam, 7 to 15 percent slopes	3,740	0.8
7D	Braddock loam, 15 to 25 percent slopes	390	0.1
8C3	Braddock clay loam, 7 to 15 percent slopes, severely eroded	570	0.1
9B	Braddock very stony loam, 2 to 7 percent slopes	270	0.1
9C	Braddock very stony loam, 7 to 15 percent slopes	580	0.1
9D	Braddock very stony loam, 15 to 25 percent slopes	410	0.1
10	Buncombe loamy sand	1,040	0.2
11D	Cataska-Hartleton very stony loams, 15 to 25 percent slopes	610	0.1
11E	Cataska-Hartleton very stony loams, 25 to 60 percent slopes	3,500	0.7
12C	Catoctin silt loam, 7 to 15 percent slopes	720	0.2
12D	Catoctin silt loam, 15 to 25 percent slopes	1,370	0.3
12E	Catoctin silt loam, 25 to 45 percent slopes	1,320	0.3
13C	Catoctin very stony silt loam, 7 to 15 percent slopes	550	0.1
13D	Catoctin very stony silt loam, 15 to 25 percent slopes	950	0.2
13E	Catoctin very stony silt loam, 25 to 45 percent slopes	2,860	0.6
14B	Chester loam, 2 to 7 percent slopes	1,220	0.3
14C	Chester loam, 7 to 15 percent slopes	5,380	1.1
14D	Chester loam, 15 to 25 percent slopes	6,440	1.4
14E	Chester loam, 25 to 45 percent slopes	2,950	0.6
15C	Chester very stony loam, 7 to 15 percent slopes	1,630	0.3
15D	Chester very stony loam, 15 to 25 percent slopes	4,550	1.0
15E	Chester very stony loam, 25 to 45 percent slopes	11,860	2.4
16	Chewacla silt loam	5,210	1.1
17	Craigsville loam	2,110	0.4
18B	Creedmoor loam, 2 to 7 percent slopes	670	0.1
19B	Cullen loam, 2 to 7 percent slopes	4,690	1.0
19C	Cullen loam, 7 to 15 percent slopes	4,030	0.9
19D	Cullen loam, 15 to 25 percent slopes	1,410	0.3
20B3	Cullen clay loam, 2 to 7 percent slopes, severely eroded	270	0.1
20C3	Cullen clay loam, 7 to 15 percent slopes, severely eroded	1,760	0.4
20D3	Cullen clay loam, 15 to 25 percent slopes, severely eroded	1,140	0.2
21B	Culpeper fine sandy loam, 2 to 7 percent slopes	1,760	0.4
21C	Culpeper fine sandy loam, 7 to 15 percent slopes	1,530	0.3
21D	Culpeper fine sandy loam, 15 to 25 percent slopes	270	0.1
22C3	Culpeper clay loam, 7 to 15 percent slopes, severely eroded	300	0.1
23B	Davidson clay loam, 2 to 7 percent slopes	2,340	0.5
23C	Davidson clay loam, 7 to 15 percent slopes	1,200	0.3
24B	Dogue silt loam, 2 to 7 percent slopes	940	0.2
25B	Dyke silt loam, 2 to 7 percent slopes	4,230	0.9
25C	Dyke silt loam, 7 to 15 percent slopes	1,300	0.3
26B3	Dyke clay loam, 2 to 7 percent slopes, severely eroded	280	0.1
26C3	Dyke clay loam, 7 to 15 percent slopes, severely eroded	1,210	0.3
26D3	Dyke clay loam, 15 to 25 percent slopes, severely eroded	470	0.1
27B	Elioak loam, 2 to 7 percent slopes	8,710	1.8
27C	Elioak loam, 7 to 15 percent slopes	7,110	1.5
27D	Elioak loam, 15 to 25 percent slopes	1,160	0.2
28C3	Elioak clay loam, 7 to 15 percent slopes, severely eroded	810	0.2
28D3	Elioak clay loam, 15 to 25 percent slopes, severely eroded	250	0.1
29B	Fauquier silt loam, 2 to 7 percent slopes	1,300	0.3
29C	Fauquier silt loam, 7 to 15 percent slopes	1,670	0.4
29D	Fauquier silt loam, 15 to 25 percent slopes	1,120	0.2
29E	Fauquier silt loam, 25 to 45 percent slopes	470	0.1
30C3	Fauquier silty clay loam, 7 to 15 percent slopes, severely eroded	440	0.1
30D3	Fauquier silty clay loam, 15 to 25 percent slopes, severely eroded	200	*
31C	Fauquier very stony silt loam, 7 to 15 percent slopes	500	0.1
31D	Fauquier very stony silt loam, 15 to 25 percent slopes	600	0.1

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
32B	Fluvanna silt loam, 2 to 7 percent slopes	700	0.1
32C	Fluvanna silt loam, 7 to 15 percent slopes	580	0.1
33C	Fluvanna very stony silt loam, 7 to 15 percent slopes	420	0.1
34B	Glenelg loam, 2 to 7 percent slopes	1,270	0.3
34C	Glenelg loam, 7 to 15 percent slopes	5,150	1.1
34D	Glenelg loam, 15 to 25 percent slopes	4,780	1.0
34E	Glenelg loam, 25 to 45 percent slopes	850	0.2
35C	Hartleton-Cataska very stony loams, 7 to 15 percent slopes	500	0.1
36B	Hayesville loam, 2 to 7 percent slopes	16,700	3.4
36C	Hayesville loam, 7 to 15 percent slopes	16,020	3.3
36D	Hayesville loam, 15 to 25 percent slopes	5,130	1.1
36E	Hayesville loam, 25 to 45 percent slopes	470	0.1
37B3	Hayesville clay loam, 2 to 7 percent slopes, severely eroded	450	0.1
37C3	Hayesville clay loam, 7 to 15 percent slopes, severely eroded	6,400	1.4
37D3	Hayesville clay loam, 15 to 25 percent slopes, severely eroded	5,030	1.1
37E3	Hayesville clay loam, 25 to 45 percent slopes, severely eroded	290	0.1
38C	Hayesville very stony loam, 7 to 15 percent slopes	1,400	0.3
38D	Hayesville very stony loam, 15 to 25 percent slopes	1,450	0.3
38E	Hayesville very stony loam, 25 to 45 percent slopes	860	0.2
39C	Hazel loam, 7 to 15 percent slopes	770	0.2
39D	Hazel loam, 15 to 25 percent slopes	4,550	1.0
39E	Hazel loam, 25 to 45 percent slopes	4,530	1.0
40D	Hazel very stony loam, 15 to 25 percent slopes	910	0.2
40E	Hazel very stony loam, 25 to 45 percent slopes	3,710	0.8
41B	Hiwassee loam, 2 to 7 percent slopes	1,480	0.3
41C	Hiwassee loam, 7 to 15 percent slopes	380	0.1
42B3	Hiwassee clay loam, 2 to 7 percent slopes, severely eroded	280	0.1
42C3	Hiwassee clay loam, 7 to 15 percent slopes, severely eroded	630	0.1
42D3	Hiwassee clay loam, 15 to 25 percent slopes, severely eroded	220	*
43B	Klinesville channery silt loam, 2 to 7 percent slopes	220	*
43C	Klinesville channery silt loam, 7 to 15 percent slopes	1,280	0.3
43D	Klinesville channery silt loam, 15 to 25 percent slopes	1,500	0.3
43E	Klinesville channery silt loam, 25 to 45 percent slopes	610	0.1
44C	Lew very stony silt loam, 7 to 15 percent slopes	1,030	0.2
44D	Lew very stony silt loam, 15 to 25 percent slopes	1,120	0.2
45C	Lew extremely stony silt loam, 7 to 15 percent slopes	660	0.1
45D	Lew extremely stony silt loam, 15 to 25 percent slopes	520	0.1
46B	Lignum silt loam, 2 to 7 percent slopes	1,820	0.4
47C	Louisburg sandy loam, 7 to 15 percent slopes	500	0.1
47D	Louisburg sandy loam, 15 to 25 percent slopes	1,170	0.2
47E	Louisburg sandy loam, 25 to 45 percent slopes	470	0.1
48D	Louisburg very stony sandy loam, 15 to 25 percent slopes	300	0.1
48E	Louisburg very stony sandy loam, 25 to 45 percent slopes	1,330	0.3
49B	Manassas silt loam, 2 to 7 percent slopes	730	0.2
50D	Manor loam, 15 to 25 percent slopes	290	0.1
50E	Manor loam, 25 to 45 percent slopes	270	0.1
51B	Manteo channery silt loam, 2 to 7 percent slopes	5,990	1.3
51C	Manteo channery silt loam, 7 to 15 percent slopes	14,030	2.9
51D	Manteo channery silt loam, 15 to 25 percent slopes	10,410	2.1
51E	Manteo channery silt loam, 25 to 45 percent slopes	2,700	0.6
52D	Manteo very channery silt loam, 15 to 25 percent slopes	940	0.2
52E	Manteo very channery silt loam, 25 to 45 percent slopes	980	0.2
53B	Masada loam, 2 to 7 percent slopes	840	0.2
53C	Masada loam, 7 to 15 percent slopes	390	0.1
54B	Mayodan loam, 2 to 7 percent slopes	490	0.1
54C	Mayodan loam, 7 to 15 percent slopes	180	*
55B	McQueen loam, 2 to 7 percent slopes	1,050	0.2
56B	Meadowville loam, 2 to 7 percent slopes	3,330	0.7
56C	Meadowville loam, 7 to 15 percent slopes	1,000	0.2
57B	Mount Lucas silt loam, 2 to 7 percent slopes	1,110	0.2
58B	Myersville silt loam, 2 to 7 percent slopes	1,210	0.3
58C	Myersville silt loam, 7 to 15 percent slopes	2,160	0.5
58D	Myersville silt loam, 15 to 25 percent slopes	1,740	0.4
58E	Myersville silt loam, 25 to 45 percent slopes	880	0.2
59C	Myersville very stony silt loam, 7 to 15 percent slopes	770	0.2
59D	Myersville very stony silt loam, 15 to 25 percent slopes	2,520	0.5
59E	Myersville very stony silt loam, 25 to 45 percent slopes	5,740	1.2
60C	Myersville-Catoctin very stony silt loams, 7 to 15 percent slopes	1,850	0.4
60D	Myersville-Catoctin very stony silt loams, 15 to 25 percent slopes	3,560	0.8
60E	Myersville-Catoctin very stony silt loams, 25 to 60 percent slopes	19,060	3.9

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
61D	Myersville-Rock outcrop complex, 15 to 25 percent slopes	240	0.1
61E	Myersville-Rock outcrop complex, 25 to 45 percent slopes	320	0.1
62B	Nason silt loam, 2 to 7 percent slopes	15,180	3.1
62C	Nason silt loam, 7 to 15 percent slopes	8,220	1.7
62D	Nason silt loam, 15 to 25 percent slopes	550	0.1
63B	Orange silt loam, 2 to 7 percent slopes	610	0.1
64B	Orange very stony silt loam, 2 to 7 percent slopes	380	0.1
65B	Pacolet sandy loam, 2 to 7 percent slopes	1,010	0.2
65C	Pacolet sandy loam, 7 to 15 percent slopes	810	0.2
66C	Parker very stony loam, 7 to 15 percent slopes	700	0.1
66D	Parker very stony loam, 15 to 25 percent slopes	2,320	0.5
66E	Parker very stony loam, 25 to 45 percent slopes	13,580	2.8
67D	Parker extremely stony loam, 15 to 25 percent slopes	550	0.1
67E	Parker extremely stony loam, 25 to 60 percent slopes	6,100	1.3
68B	Penn silt loam, 2 to 7 percent slopes	960	0.2
68C	Penn silt loam, 7 to 15 percent slopes	1,940	0.4
68D	Penn silt loam, 15 to 25 percent slopes	390	0.1
69	Pits, quarry	250	0.1
70C	Porters very stony loam, 7 to 15 percent slopes	210	*
70D	Porters very stony loam, 15 to 25 percent slopes	280	0.1
70E	Porters very stony loam, 25 to 45 percent slopes	1,800	0.4
71B	Rabun clay loam, 2 to 7 percent slopes	3,670	0.8
71C	Rabun clay loam, 7 to 15 percent slopes	6,150	1.3
71D	Rabun clay loam, 15 to 25 percent slopes	5,400	1.1
71E	Rabun clay loam, 25 to 45 percent slopes	1,340	0.3
72B3	Rabun clay, 2 to 7 percent slopes, severely eroded	1,130	0.2
72C3	Rabun clay, 7 to 15 percent slopes, severely eroded	4,540	1.0
72D3	Rabun clay, 15 to 25 percent slopes, severely eroded	2,320	0.5
72E3	Rabun clay, 25 to 45 percent slopes, severely eroded	240	0.1
73C	Rabun very stony clay loam, 7 to 15 percent slopes	540	0.1
73D	Rabun very stony clay loam, 15 to 25 percent slopes	2,060	0.4
73E	Rabun very stony clay loam, 25 to 45 percent slopes	1,220	0.3
74B	Rapidan silt loam, 2 to 7 percent slopes	1,400	0.3
74C	Rapidan silt loam, 7 to 15 percent slopes	870	0.2
74D	Rapidan silt loam, 15 to 25 percent slopes	280	0.1
75C3	Rapidan silty clay loam, 7 to 15 percent slopes, severely eroded	420	0.1
75D3	Rapidan silty clay loam, 15 to 25 percent slopes, severely eroded	400	0.1
76	Riverview loam	4,230	0.9
77	Riverview-Chewacla complex	3,380	0.7
78	Rowland silt loam	460	0.1
79B	Starr silt loam, 2 to 7 percent slopes	4,230	0.9
80B	Tatum silt loam, 2 to 7 percent slopes	3,730	0.8
80C	Tatum silt loam, 7 to 15 percent slopes	1,100	0.2
81B	Thurmont loam, 2 to 7 percent slopes	1,960	0.4
81C	Thurmont loam, 7 to 15 percent slopes	2,560	0.5
81D	Thurmont loam, 15 to 25 percent slopes	460	0.1
82C	Thurmont very stony loam, 7 to 15 percent slopes	1,060	0.2
82D	Thurmont very stony loam, 15 to 25 percent slopes	790	0.2
83	Toccoa fine sandy loam	3,050	0.6
84B	Totier silt loam, 2 to 7 percent slopes	4,410	0.9
84C	Totier silt loam, 7 to 15 percent slopes	990	0.2
85C3	Totier silty clay loam, 7 to 15 percent slopes, severely eroded	380	0.1
86B	Turbeville loam, 2 to 7 percent slopes	850	0.2
86C	Turbeville loam, 7 to 15 percent slopes	350	0.1
87B	Tusquitee stony loam, 2 to 7 percent slopes	470	0.1
87C	Tusquitee stony loam, 7 to 15 percent slopes	970	0.2
87D	Tusquitee stony loam, 15 to 25 percent slopes	490	0.1
88	Udorthents, loamy	1,550	0.3
89B	Unison silt loam, 2 to 7 percent slopes	970	0.2
89C	Unison silt loam, 7 to 15 percent slopes	310	0.1
90B	Unison very stony silt loam, 2 to 7 percent slopes	580	0.1
90C	Unison very stony silt loam, 7 to 15 percent slopes	1,220	0.3
90D	Unison very stony silt loam, 15 to 25 percent slopes	250	0.1
91	Urban land	660	0.1
92	Wahee silt loam	690	0.1
93C	Watt channery silt loam, 7 to 15 percent slopes	270	0.1
93D	Watt channery silt loam, 15 to 25 percent slopes	270	0.1
93E	Watt channery silt loam, 25 to 45 percent slopes	400	0.1
94B	Wedowee sandy loam, 2 to 7 percent slopes	500	0.1
94C	Wedowee sandy loam, 7 to 15 percent slopes	850	0.2

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
95	Wehadkee silt loam	3,550	0.7
96B	Worsham loam, 2 to 7 percent slopes	1,450	0.3
	Water	2,520	0.5
	Total	474,000	100.0

* Less than 0.1 percent.

TABLE 5.--PRIME FARMLAND

[Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name]

Map symbol	Soil name
1B	Abell silt loam, 2 to 7 percent slopes
2B	Albemarle fine sandy loam, 2 to 7 percent slopes
6	Bermudian silt loam
7B	Braddock loam, 2 to 7 percent slopes
14B	Chester loam, 2 to 7 percent slopes
16	Chewacla silt loam (where drained and protected from flooding)
19B	Cullen loam, 2 to 7 percent slopes
21B	Culpeper fine sandy loam, 2 to 7 percent slopes
23B	Davidson clay loam, 2 to 7 percent slopes
24B	Dogue silt loam, 2 to 7 percent slopes
25B	Dyke silt loam, 2 to 7 percent slopes
27B	Elioak loam, 2 to 7 percent slopes
29B	Fauquier silt loam, 2 to 7 percent slopes
32B	Fluvanna silt loam, 2 to 7 percent slopes
34B	Glenelg loam, 2 to 7 percent slopes
36B	Hayesville loam, 2 to 7 percent slopes
41B	Hiwassee loam, 2 to 7 percent slopes
49B	Manassas silt loam, 2 to 7 percent slopes
53B	Masada loam, 2 to 7 percent slopes
54B	Mayodan loam, 2 to 7 percent slopes
55B	McQueen loam, 2 to 7 percent slopes
56B	Meadowville loam, 2 to 7 percent slopes
57B	Mount Lucas silt loam, 2 to 7 percent slopes (where drained)
58B	Myersville silt loam, 2 to 7 percent slopes
62B	Nason silt loam, 2 to 7 percent slopes
65B	Pacolet sandy loam, 2 to 7 percent slopes
68B	Penn silt loam, 2 to 7 percent slopes
71B	Rabun clay loam, 2 to 7 percent slopes
74B	Rapidan silt loam, 2 to 7 percent slopes
76	Riverview loam (where protected from flooding)
77	Riverview-Chewacla complex (where drained and protected from flooding)
78	Rowland silt loam (where drained and protected from flooding)
79B	Starr silt loam, 2 to 7 percent slopes
80B	Tatum silt loam, 2 to 7 percent slopes
81B	Thurmont loam, 2 to 7 percent slopes
83	Toccoa fine sandy loam (where protected from flooding)
84B	Totier silt loam, 2 to 7 percent slopes
86B	Turbeville loam, 2 to 7 percent slopes
89B	Unison silt loam, 2 to 7 percent slopes
94B	Wedowee sandy loam, 2 to 7 percent slopes

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Corn	Oats	Alfalfa hay	Grass-legume hay	Pasture	Apples	Peaches
	Bu	Bu	Ton	Ton	AUM*	Bu	Bu
1B Abell	110	60	---	3.5	8.0	---	---
2B Albemarle	100	70	---	2.5	4.0	---	---
2C Albemarle	80	60	---	2.5	4.0	---	---
2D Albemarle	60	40	---	2.0	3.5	---	---
3C, 3D Albemarle	---	---	---	---	3.0	---	---
3E Albemarle	---	---	---	---	2.0	---	---
4B, 4C Ashe	65	---	---	3.0	6.0	300	150
4D Ashe	---	---	---	2.0	4.5	260	120
4E Ashe	---	---	---	---	4.0	250	110
5B Belvoir	80	60	---	2.4	6.0	---	---
6 Bermudian	130	80	---	3.5	10.5	---	---
7B Braddock	120	---	---	5.0	10.0	480	380
7C Braddock	115	---	---	4.5	9.0	450	340
7D Braddock	100	---	---	4.0	7.5	420	300
8C3 Braddock	85	---	---	3.5	6.5	310	300
9B, 9C, 9D Braddock	---	---	---	---	6.0	480	380
10 Buncombe	---	---	---	3.0	5.0	---	---
11D Cataska-Hartleton	---	---	---	---	---	---	---
11E Cataska-Hartleton	---	---	---	---	---	---	---
12C Catoctin	---	---	---	2.5	5.0	200	---
12D Catoctin	---	---	---	2.0	4.0	160	---

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Oats	Alfalfa hay	Grass-legume hay	Pasture	Apples	Peaches
	Bu	Bu	Ton	Ton	AUM*	Bu	Bu
12E, 13C, 13D, 13E-------- Catoctin	---	---	---	---	---	---	---
14B---------------------- Chester	135	80	5.5	3.5	7.0	550	400
14C---------------------- Chester	125	75	5.0	3.5	7.0	520	370
14D---------------------- Chester	110	65	4.5	3.0	6.0	470	300
14E, 15C, 15D, 15E-------- Chester	---	---	---	---	---	450	250
16----------------------- Chewacla	100	---	---	4.0	9.5	---	---
17----------------------- Craigsville	75	50	2.0	1.8	4.5	---	---
18B---------------------- Creedmoor	75	75	---	2.5	5.0	---	---
19B---------------------- Cullen	120	80	4.0	3.8	9.1	520	450
19C---------------------- Cullen	115	70	3.7	3.6	8.7	500	420
19D---------------------- Cullen	90	55	---	3.0	8.0	450	370
20B3--------------------- Cullen	110	65	3.7	3.2	8.3	460	380
20C3--------------------- Cullen	80	50	3.0	2.8	7.6	420	340
20D3--------------------- Cullen	---	---	---	2.2	6.0	350	250
21B---------------------- Culpeper	115	80	4.2	3.5	8.5	---	---
21C---------------------- Culpeper	105	75	4.0	3.0	7.5	---	---
21D---------------------- Culpeper	90	70	3.6	2.8	7.1	---	---
22C3--------------------- Culpeper	75	60	2.7	2.0	6.5	---	---
23B, 23C----------------- Davidson	125	70	5.5	5.5	9.5	550	500
24B---------------------- Dogue	115	70	---	3.5	7.0	---	---
25B---------------------- Dyke	125	70	5.5	5.5	9.0	560	510
25C---------------------- Dyke	120	60	5.0	5.0	8.5	510	500
26B3--------------------- Dyke	120	---	4.0	5.0	8.5	550	500

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Oats	Alfalfa hay	Grass-legume hay	Pasture	Apples	Peaches
	Bu	Bu	Ton	Ton	AUM*	Bu	Bu
26C3----------------------- Dyke	85	---	3.7	3.5	6.0	500	450
26D3----------------------- Dyke	---	---	---	4.5	7.5	450	400
27B------------------------ Elioak	120	80	4.5	3.5	9.5	450	320
27C------------------------ Elioak	110	75	4.0	3.5	9.0	430	300
27D------------------------ Elioak	90	65	---	3.0	8.5	---	---
28C3----------------------- Elioak	90	65	3.5	3.0	8.5	---	---
28D3----------------------- Elioak	---	---	---	2.5	7.5	---	---
29B------------------------ Fauquier	110	80	4.5	4.0	8.5	450	320
29C------------------------ Fauquier	100	75	4.0	3.5	8.0	430	300
29D------------------------ Fauquier	90	65	3.0	3.0	7.0	430	250
29E------------------------ Fauquier	---	---	---	---	---	---	---
30C3----------------------- Fauquier	85	65	3.7	3.0	8.5	---	---
30D3----------------------- Fauquier	---	---	---	2.5	7.5	---	---
31C, 31D------------------- Fauquier	---	---	---	2.0	7.0	430	300
32B------------------------ Fluvanna	110	65	---	3.0	8.0	---	---
32C------------------------ Fluvanna	100	50	---	3.0	8.0	---	---
33C------------------------ Fluvanna	---	---	---	2.5	7.0	---	---
34B------------------------ Glenelg	120	80	4.5	3.5	8.0	---	---
34C------------------------ Glenelg	110	75	4.0	3.5	7.0	---	---
34D------------------------ Glenelg	90	65	3.5	3.0	6.0	---	---
34E------------------------ Glenelg	---	---	---	---	5.0	---	---
35C------------------------ Hartleton-Cataska	---	---	---	---	---	---	---
36B------------------------ Hayesville	115	80	4.5	3.6	8.0	520	420

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Oats	Alfalfa hay	Grass-legume hay	Pasture	Apples	Peaches
	Bu	Bu	Ton	Ton	AUM*	Bu	Bu
36C Hayesville	80	50	3.2	3.0	7.0	500	400
36D Hayesville	---	---	---	2.5	6.0	440	300
36E Hayesville	---	---	---	---	4.5	360	200
37B3 Hayesville	75	50	3.2	3.0	6.5	500	380
37C3 Hayesville	---	---	2.6	2.2	6.5	440	300
37D3 Hayesville	---	---	---	2.0	5.0	300	210
37E3 Hayesville	---	---	---	---	4.0	250	---
38C Hayesville	---	---	---	---	5.0	420	320
38D, 38E Hayesville	---	---	---	---	4.0	370	240
39C Hazel	---	---	---	2.0	3.5	---	---
39D Hazel	---	---	---	2.0	3.0	---	---
39E Hazel	---	---	---	---	2.5	---	---
40D Hazel	---	---	---	---	3.0	---	---
40E Hazel	---	---	---	---	2.5	---	---
41B Hiwassee	110	90	4.5	3.9	6.5	550	500
41C Hiwassee	100	70	4.0	3.3	5.5	500	450
42B3 Hiwassee	105	70	4.2	3.3	5.5	480	400
42C3 Hiwassee	95	70	3.8	3.3	5.5	420	350
42D3 Hiwassee	---	---	---	3.0	5.0	370	250
43B Klinesville	60	55	2.5	2.0	5.0	---	---
43C Klinesville	---	50	2.5	2.0	5.0	---	---
43D Klinesville	---	---	---	2.0	4.5	---	---
43E Klinesville	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Oats	Alfalfa hay	Grass-legume hay	Pasture	Apples	Peaches
	Bu	Bu	Ton	Ton	AUM*	Bu	Bu
44C, 44D Lew	---	---	---	---	3.0	450	260
45C, 45D Lew	---	---	---	---	3.0	430	230
46B Lignum	100	50	---	2.5	7.0	---	---
47C Louisburg	---	45	---	2.0	4.0	---	---
47D, 47E, 48D, 48E Louisburg	---	---	---	---	3.0	---	---
49B Manassas	130	80	---	3.5	6.0	---	---
50D Manor	80	55	3.0	2.0	5.5	---	---
50E Manor	---	---	---	---	4.0	---	---
51B Manteo	---	35	---	1.5	2.5	---	---
51C Manteo	---	---	---	---	2.0	---	---
51D, 51E Manteo	---	---	---	---	---	---	---
52D, 52E Manteo	---	---	---	---	---	---	---
53B Masada	120	75	4.5	4.0	8.5	---	---
53C Masada	110	75	4.5	3.5	8.0	---	---
54B Mayodan	95	85	---	4.8	8.0	---	---
54C Mayodan	75	60	---	4.2	7.0	---	---
55B McQueen	120	75	---	4.5	9.0	---	---
56B Meadowville	125	75	4.2	3.8	6.5	---	---
56C Meadowville	120	70	4.2	3.8	6.5	---	---
57B Mount Lucas	105	70	4.0	3.0	7.5	---	---
58B Myersville	100	80	4.0	3.5	7.0	520	450
58C Myersville	90	75	3.7	3.5	7.0	480	400
58D Myersville	110	65	---	3.0	6.0	450	350

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Oats	Alfalfa hay	Grass-legume hay	Pasture	Apples	Peaches
	Bu	Bu	Ton	Ton	AUM*	Bu	Bu
58E, 59C, 59D, 59E-------- Myersville	---	---	---	---	6.0	440	280
60C, 60D----------------- Myersville-Catoctin	---	---	---	---	6.0	420	230
60E---------------------- Myersville-Catoctin	---	---	---	---	5.0	360	---
61D---------------------- Myersville-Rock outcrop	---	---	---	---	5.0	400	---
61E---------------------- Myersville-Rock outcrop	---	---	---	---	5.0	360	---
62B---------------------- Nason	90	70	---	3.0	8.0	---	---
62C---------------------- Nason	85	65	---	2.5	7.5	---	---
62D---------------------- Nason	65	60	---	2.5	7.5	---	---
63B---------------------- Orange	80	50	---	3.0	6.5	---	---
64B---------------------- Orange	---	---	---	---	6.0	---	---
65B---------------------- Pacolet	80	65	---	4.0	8.0	---	---
65C---------------------- Pacolet	65	55	---	3.5	7.0	---	---
66C, 66D----------------- Parker	---	---	---	---	5.5	420	280
66E---------------------- Parker	---	---	---	---	5.0	350	200
67D, 67E----------------- Parker	---	---	---	---	4.5	300	---
68B---------------------- Penn	95	65	3.5	3.0	6.5	---	---
68C---------------------- Penn	90	60	3.0	2.5	5.5	---	---
68D---------------------- Penn	80	55	3.0	2.0	4.5	---	---
69**. Pits							
70C---------------------- Porters	---	---	---	---	6.0	520	340
70D---------------------- Porters	---	---	---	---	5.0	500	270
70E---------------------- Porters	---	---	---	---	4.0	450	---
71B---------------------- Rabun	120	70	4.2	5.0	9.0	550	500

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Oats	Alfalfa hay	Grass-legume hay	Pasture	Apples	Peaches
	Bu	Bu	Ton	Ton	AUM*	Bu	Bu
71C, 71D Rabun	100	60	3.7	4.0	8.0	500	450
71E Rabun	---	---	---	3.0	6.0	380	---
72B3 Rabun	95	---	---	5.0	9.0	500	450
72C3 Rabun	80	---	---	4.0	7.5	450	400
72D3 Rabun	---	---	---	3.0	6.0	300	---
72E3, 73C, 73D, 73E Rabun	---	---	---	---	4.5	250	---
74B Rapidan	120	75	4.5	4.3	9.0	---	---
74C Rapidan	110	65	4.0	4.0	8.0	---	---
74D Rapidan	85	60	3.7	3.0	7.0	---	---
75C3 Rapidan	85	60	3.7	3.0	7.0	---	---
75D3 Rapidan	---	---	---	---	6.0	---	---
76 Riverview	115	---	---	3.5	7.0	---	---
77 Riverview-Chewacla	90	---	---	3.0	6.5	---	---
78 Rowland	120	80	---	3.5	8.5	---	---
79B Starr	110	75	---	4.5	8.5	---	---
80B Tatum	90	70	4.0	3.0	8.0	---	---
80C Tatum	85	65	3.5	2.5	7.5	---	---
81B Thurmont	125	---	---	4.5	8.0	350	340
81C Thurmont	115	---	---	4.0	7.5	325	300
81D Thurmont	100	---	---	4.0	7.5	300	280
82C Thurmont	---	---	---	---	7.5	240	200
82D Thurmont	---	---	---	---	7.0	200	150
83 Toccoa	110	---	---	4.0	8.0	---	---

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Oats	Alfalfa hay	Grass-legume hay	Pasture	Apples	Peaches
	Bu	Bu	Ton	Ton	AUM*	Bu	Bu
84B----------------------- Totier	125	75	5.5	4.0	9.0	---	---
84C----------------------- Totier	110	65	5.0	3.5	8.0	---	---
85C3---------------------- Totier	100	55	4.7	4.0	7.5	---	---
86B----------------------- Turbeville	120	75	4.5	4.0	8.5	---	---
86C----------------------- Turbeville	110	75	4.5	3.5	7.5	---	---
87B----------------------- Tusquitee	110	75	---	4.0	8.0	350	350
87C----------------------- Tusquitee	90	60	---	3.5	7.0	400	380
87D----------------------- Tusquitee	---	---	---	2.5	5.0	450	400
88. Udorthents							
89B----------------------- Unison	120	---	5.0	5.0	9.2	500	450
89C----------------------- Unison	115	---	4.5	4.7	9.2	475	430
90B, 90C, 90D------------- Unison	---	---	---	---	3.0	430	390
91**. Urban land							
92------------------------ Wahee	110	70	---	---	---	---	---
93C----------------------- Watt	60	40	---	---	5.0	---	---
93D----------------------- Watt	---	---	---	---	4.0	---	---
93E----------------------- Watt	---	---	---	---	2.5	---	---
94B----------------------- Wedowee	80	80	---	---	---	---	---
94C----------------------- Wedowee	60	70	---	---	---	---	---
95------------------------ Wehadkee	75	---	---	---	9.5	---	---
96B----------------------- Worsham	75	---	---	2.0	5.0	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available].

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
1B Abell	2o	Slight	Slight	Slight	Slight	Northern red oak	80	Loblolly pine, yellow-poplar, black walnut.
						Yellow-poplar	90	
						Loblolly pine	90	
						Shortleaf pine	80	
						Virginia pine	80	
2B, 2C Albemarle	3o	Slight	Slight	Slight	Slight	Northern red oak	75	Virginia pine, yellow-poplar, loblolly pine.
						Yellow-poplar	80	
						Virginia pine	72	
						Shortleaf pine	75	
2D Albemarle	3r	Moderate	Moderate	Slight	Slight	Northern red oak	75	Virginia pine, yellow-poplar, loblolly pine.
						Yellow-poplar	80	
						Virginia pine	72	
						Shortleaf pine	75	
3C Albemarle	3o	Slight	Slight	Slight	Slight	Northern red oak	75	Virginia pine, yellow-poplar, loblolly pine.
						Yellow-poplar	80	
						Virginia pine	72	
						Shortleaf pine	75	
3D Albemarle	3r	Moderate	Moderate	Slight	Slight	Northern red oak	75	Virginia pine, yellow-poplar, loblolly pine.
						Yellow-poplar	80	
						Virginia pine	72	
						Shortleaf pine	75	
4B, 4C Ashe	3o	Slight	Slight	Slight	Slight	Chestnut oak	---	Loblolly pine, Virginia pine.
						Scarlet oak	---	
						Yellow-poplar	78	
						Eastern white pine	84	
						Northern red oak	---	
						Pitch pine	---	
						Shortleaf pine	66	
						Virginia pine	66	
4D, 4E Ashe	3r	Moderate	Moderate	Moderate	Slight	Chestnut oak	---	Loblolly pine, Virginia pine.
						Scarlet oak	---	
						Yellow-poplar	78	
						Eastern white pine	84	
						Northern red oak	---	
						Pitch pine	---	
						Shortleaf pine	66	
						Virginia pine	66	
5B Belvoir	3w	Slight	Moderate	Slight	Slight	Loblolly pine	80	Loblolly pine, sweetgum, yellow-poplar.
						Red maple	66	
						Sweetgum	80	
						Yellow-poplar	80	
6 Bermudian	1o	Slight	Slight	Slight	Slight	Northern red oak	86	Yellow-poplar, black walnut.
						Yellow-poplar	96	
						Sweetgum	96	
7B, 7C, 8C3 Braddock	2c	Slight	Moderate	Slight	Slight	Northern red oak	80	Yellow-poplar, eastern white pine.
						Yellow-poplar	90	
						Eastern white pine	95	
						Virginia pine	76	
7D Braddock	2r	Moderate	Severe	Slight	Slight	Northern red oak	80	Yellow-poplar, eastern white pine.
						Yellow-poplar	90	
						Eastern white pine	95	

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
9B, 9C Braddock	2c	Slight	Moderate	Slight	Slight	Northern red oak	80	Yellow-poplar, eastern white pine.
						Yellow-poplar	90	
						Eastern white pine	95	
9D Braddock	2r	Severe	Severe	Slight	Slight	Northern red oak	70	Yellow-poplar, white pine.
						Yellow-poplar	80	
						Eastern white pine	85	
10 Buncombe	2s	Slight	Moderate	Moderate	Slight	American sycamore	90	Loblolly pine, American sycamore.
						Sweetgum	90	
						Loblolly pine	90	
						Yellow-poplar	95	
11D*:								
Cataska	5f	Moderate	Moderate	Severe	Severe	Chestnut oak	50	Pitch pine, Virginia pine.
						Scarlet oak	50	
						Pitch pine	50	
Hartleton	3r	Slight	Moderate	Slight	Slight	Eastern white pine	80	Red pine, Virginia pine.
						Virginia pine	70	
11E*:								
Cataska	5f	Moderate	Moderate	Severe	Severe	Chestnut oak	50	Pitch pine, Virginia pine.
						Scarlet oak	50	
						Pitch pine	50	
Hartleton	3r	Slight	Moderate	Slight	Slight	Eastern white pine	80	Virginia pine, red pine.
						Virginia pine	70	
12C Catoctin	4f	Slight	Slight	Moderate	Slight	Virginia pine	60	Virginia pine, eastern white pine.
						Shortleaf pine	60	
						Yellow-poplar	70	
12D Catoctin	4f	Moderate	Moderate	Moderate	Slight	Virginia pine	60	Virginia pine, eastern white pine.
						Shortleaf pine	60	
						Yellow-poplar	70	
12E Catoctin	4r	Severe	Severe	Moderate	Slight	Virginia pine	60	Virginia pine, eastern white pine.
						Shortleaf pine	60	
						Yellow-poplar	70	
13C Catoctin	4f	Slight	Slight	Moderate	Slight	Virginia pine	60	Virginia pine, eastern white pine.
						Shortleaf pine	60	
						Northern red oak	60	
						Yellow-poplar	70	
13D Catoctin	4f	Moderate	Moderate	Moderate	Slight	Virginia pine	60	Virginia pine, eastern white pine.
						Shortleaf pine	60	
						Northern red oak	60	
						Yellow-poplar	70	
13E Catoctin	4r	Severe	Severe	Moderate	Slight	Virginia pine	60	Virginia pine, eastern white pine.
						Shortleaf pine	60	
						Northern red oak	60	
						Yellow-poplar	70	
14B, 14C Chester	2o	Slight	Slight	Slight	Slight	Chestnut oak	77	Black walnut, yellow-poplar, eastern white pine.
						Yellow-poplar	86	
						Virginia pine	80	
14D Chester	2r	Moderate	Moderate	Slight	Slight	Chestnut oak	77	Black walnut, yellow-poplar, eastern white pine.
						Yellow-poplar	86	
						Virginia pine	80	
14E Chester	2r	Severe	Severe	Slight	Slight	Shortleaf pine	80	Loblolly pine.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
15C Chester	2x	Slight	Moderate	Slight	Slight	Black oak	77	Black walnut, yellow-poplar.
						Yellow-poplar	86	
						Virginia pine	80	
						Shortleaf pine	80	
15D Chester	2x	Moderate	Moderate	Slight	Slight	Black oak	77	Black walnut, yellow-poplar.
						Yellow-poplar	86	
						Virginia pine	80	
						Shortleaf pine	80	
15E Chester	2x	Severe	Severe	Slight	Slight	Black oak	77	Black walnut, yellow-poplar.
						Yellow-poplar	86	
						Virginia pine	80	
						Shortleaf pine	80	
16 Chewacla	1w	Slight	Moderate	Slight	Slight	Loblolly pine	96	Loblolly pine, American sycamore, yellow-poplar, sweetgum.
						Yellow-poplar	100	
						American sycamore	---	
						Sweetgum	97	
						Water oak	86	
						Eastern cottonwood	---	
						Green ash	---	
						Southern red oak	---	
17 Craigsville	2o	Slight	Slight	Slight	Slight	Northern red oak	80	Loblolly pine, eastern white pine, yellow-poplar.
						Yellow-poplar	95	
						Eastern white pine	90	
						Virginia pine	80	
18B Creedmoor	3w	Slight	Moderate	Slight	Slight	Loblolly pine	84	Loblolly pine, sweetgum, yellow-poplar.
						Shortleaf pine	66	
						Sweetgum	---	
						Water oak	---	
19B, 19C Cullen	3o	Slight	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine, Virginia pine, yellow-poplar.
						Shortleaf pine	70	
						Virginia pine	70	
						Yellow-poplar	70	
						White oak	60	
						Northern red oak	70	
19D Cullen	3r	Moderate	Moderate	Slight	Slight	Loblolly pine	80	Loblolly pine, Virginia pine, yellow-poplar.
						Shortleaf pine	70	
						Virginia pine	70	
						Yellow-poplar	80	
						White oak	70	
						Northern red oak	70	
20B3, 20C3 Cullen	4c	Moderate	Moderate	Moderate	Slight	Loblolly pine	70	Loblolly pine.
						Shortleaf pine	60	
						Virginia pine	65	
						White oak	60	
						Northern red oak	60	
20D3 Cullen	4c	Severe	Severe	Moderate	Slight	Loblolly pine	70	Loblolly pine.
						Shortleaf pine	60	
						Virginia pine	65	
						White oak	60	
						Northern red oak	60	
21B, 21C Culpeper	3o	Slight	Slight	Slight	Slight	Virginia pine	66	Loblolly pine, yellow-poplar.
						Shortleaf pine	66	
						Yellow-poplar	85	
						Northern red oak	70	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
21D	3r	Moderate	Moderate	Slight	Slight	Virginia pine	66	Loblolly pine, yellow-poplar.
Culpeper						Shortleaf pine	66	
						Yellow-poplar	85	
						Northern red oak	70	
22C3	4c	Slight	Moderate	Slight	Slight	Shortleaf pine	60	Loblolly pine, yellow-poplar.
Culpeper						Virginia pine	60	
						Northern red oak	60	
23B, 23C	3c	Moderate	Slight	Slight	Slight	Loblolly pine	81	Loblolly pine, yellow-poplar, black walnut.
Davidson						Shortleaf pine	68	
						Northern red oak	85	
						Southern red oak	72	
						Sweetgum	80	
						White oak	71	
						Yellow-poplar	80	
24B	2w	Slight	Moderate	Slight	Slight	Loblolly pine	90	Loblolly pine.
Dogue						Southern red oak	80	
						Sweetgum	90	
						Yellow-poplar	93	
						White oak	80	
25B, 25C, 26B3, 26C3	2c	Slight	Moderate	Slight	Slight	Northern red oak	85	Yellow-poplar, loblolly pine, northern red oak, black walnut.
Dyke						Yellow-poplar	95	
						Virginia pine	80	
						Shortleaf pine	80	
26D3	2c	Moderate	Severe	Slight	Slight	Northern red oak	85	Yellow-poplar, loblolly pine, northern red oak, black walnut.
Dyke						Yellow-poplar	95	
						Virginia pine	80	
						Shortleaf pine	80	
27B, 27C	2c	Slight	Moderate	Slight	Slight	Black oak	80	Loblolly pine, yellow-poplar.
Elioak						Yellow-poplar	90	
						Virginia pine	76	
						Shortleaf pine	76	
27D	2c	Moderate	Severe	Slight	Slight	Black oak	80	Loblolly pine, yellow-poplar.
Elioak						Yellow-poplar	90	
						Virginia pine	76	
						Shortleaf pine	76	
28C3	2c	Slight	Moderate	Slight	Slight	Black oak	80	Loblolly pine, yellow-poplar.
Elioak						Yellow-poplar	90	
						Virginia pine	76	
						Shortleaf pine	76	
28D3	2c	Moderate	Severe	Slight	Slight	Black oak	80	Loblolly pine, yellow-poplar.
Elioak						Yellow-poplar	90	
						Virginia pine	76	
						Shortleaf pine	76	
29B, 29C	1c	Slight	Moderate	Slight	Slight	Northern red oak	95	Yellow-poplar, black walnut, loblolly pine.
Fauquier						Yellow-poplar	120	
29D	1c	Moderate	Severe	Slight	Slight	Northern red oak	95	Yellow-poplar, black walnut, loblolly pine.
Fauquier						Yellow-poplar	120	
29E	1c	Severe	Severe	Slight	Slight	Northern red oak	95	Yellow-poplar, black walnut, loblolly pine.
Fauquier						Yellow-poplar	120	
30C3	3c	Slight	Moderate	Slight	Slight	Northern red oak	66	Virginia pine, loblolly pine,
Fauquier						Virginia pine	70	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
30D3----------------	3c	Moderate	Severe	Moderate	Slight	Northern red oak----	66	Virginia pine, loblolly pine.
Fauquier						Virginia pine-------	70	
31C-----------------	1c	Slight	Moderate	Slight	Slight	Northern red oak----	95	Yellow-poplar, black walnut, loblolly pine.
Fauquier						Yellow-poplar-------	120	
31D-----------------	1c	Moderate	Severe	Slight	Slight	Northern red oak----	95	Yellow-poplar, black walnut, loblolly
Fauquier						Yellow-poplar-------	120	
32B, 32C------------	3o	Slight	Slight	Slight	Slight	Virginia pine-------	74	Loblolly pine, Virginia pine.
Fluvanna						Shortleaf pine------	66	
						Northern red oak----	70	
33C-----------------	3o	Slight	Slight	Slight	Slight	Virginia pine-------	74	Loblolly pine, Virginia pine.
Fluvanna						Shortleaf pine------	66	
						Northern red oak----	70	
34B, 34C------------	20	Slight	Slight	Slight	Slight	Black oak-----------	78	Black walnut, loblolly pine, yellow-poplar, Virginia pine. Japanese larch.
Glenelg						Yellow-poplar-------	87	
						Virginia pine-------	70	
						Shortleaf pine------	70	
34D-----------------	2r	Moderate	Moderate	Slight	Slight	Black oak-----------	78	Black walnut, loblolly pine, yellow-poplar, Virginia pine.
Glenelg						Yellow-poplar-------	87	
						Virginia pine-------	70	
						Shortleaf pine------	70	
34E-----------------	2r	Severe	Severe	Slight	Slight	Black oak-----------	78	Black walnut, loblolly pine, yellow-poplar, Virginia pine.
Glenelg						Yellow-poplar-------	87	
						Virginia pine-------	70	
						Shortleaf pine------	70	
35C*:								
Hartleton----------	3f	Slight	Slight	Slight	Slight	Northern red oak----	70	Virginia pine, eastern white pine.
						Chestnut oak--------	70	
Cataska------------	5f	Moderate	Slight	Severe	Severe	Chestnut oak--------	50	Pitch pine.
						Scarlet oak---------	50	
						Pitch pine----------	50	
36B, 36C------------	2o	Slight	Slight	Slight	Slight	Pitch pine----------	81	Shortleaf pine, eastern white pine, yellow-poplar.
Hayesville						Shortleaf pine------	76	
						Virginia pine-------	76	
						Eastern white pine--	86	
						Northern red oak----	76	
						Yellow-poplar-------	93	
36D-----------------	2r	Slight	Moderate	Slight	Slight	Pitch pine----------	81	Shortleaf pine, eastern white pine, yellow-poplar.
Hayesville						Shortleaf pine------	76	
						Virginia pine-------	70	
						Eastern white pine--	86	
						Northern red oak----	76	
						Yellow-poplar-------	93	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
37B3, 37C3 Hayesville	2o	Slight	Slight	Slight	Slight	Pitch pine	81	Shortleaf pine, eastern white pine, yellow-poplar.
						Shortleaf pine	76	
						Virginia pine	76	
						Eastern white pine	86	
						Northern red oak	76	
						Yellow-poplar	93	
37D3, 37E3 Hayesville	2r	Slight	Moderate	Slight	Slight	Pitch pine	81	Shortleaf pine, eastern white pine, yellow-poplar.
						Shortleaf pine	76	
						Virginia pine	76	
						Eastern white pine	86	
						Northern red oak	76	
						Yellow-poplar	93	
38C Hayesville	2o	Slight	Slight	Slight	Slight	Shortleaf pine	76	Loblolly pine, yellow-poplar.
						Virginia pine	76	
						Northern red oak	76	
						Yellow-poplar	93	
38D Hayesville	2r	Moderate	Moderate	Slight	Slight	Shortleaf pine	76	Loblolly pine, yellow-poplar.
						Virginia pine	76	
						Northern red oak	76	
						Yellow-poplar	93	
38E Hayesville	2r	Severe	Severe	Slight	Slight	Shortleaf pine	76	Loblolly pine, yellow-poplar.
						Virginia pine	76	
						Northern red oak	76	
						Yellow-poplar	93	
39C Hazel	4d	Slight	Slight	Moderate	Slight	Northern red oak	60	Red pine, eastern white pine.
						Virginia pine	60	
39D Hazel	4d	Moderate	Moderate	Moderate	Slight	Northern red oak	60	Red pine, eastern white pine.
						Virginia pine	60	
39E Hazel	4d	Severe	Severe	Moderate	Slight	Northern red oak	60	Red pine, eastern white pine.
						Virginia pine	60	
40D Hazel	4d	Moderate	Moderate	Moderate	Slight	Northern red oak	60	Virginia pine, red pine, eastern white pine.
						Virginia pine	60	
40E Hazel	4d	Severe	Severe	Moderate	Slight	Northern red oak	60	Virginia pine, red pine, eastern white pine.
						Virginia pine	60	
41B, 41C Hiwassee	3o	Slight	Slight	Slight	Slight	Loblolly pine	76	Loblolly pine, yellow-poplar.
						Northern red oak	70	
						Shortleaf pine	70	
						White oak	70	
						Yellow-poplar	85	
42B3, 42C3 Hiwassee	4c	Moderate	Moderate	Moderate	Slight	Loblolly pine	70	Loblolly pine, Virginia pine.
						Shortleaf pine	60	
42D3 Hiwassee	4c	Slight	Moderate	Moderate	Slight	Loblolly pine	75	Loblolly pine, yellow-poplar.
						Northern red oak	60	
						Shortleaf pine	60	
						White oak	60	
						Yellow-poplar	75	
43B, 43C Klinesville	4d	Slight	Slight	Moderate	Slight	Northern red oak	60	Virginia pine, loblolly pine.
						Virginia pine	60	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
43D Klinesville	5d	Slight	Moderate	Moderate	Slight	Northern red oak	60	Virginia pine, eastern white pine, red pine, pitch pine.
						Virginia pine	60	
43E Klinesville	5d	Moderate	Severe	Moderate	Slight	Northern red oak	60	Virginia pine, eastern white pine, red pine, pitch pine.
						Virginia pine	60	
44C Lew	2o	Slight	Slight	Slight	Slight	Northern red oak	80	Yellow-poplar, eastern white pine.
						Yellow-poplar	90	
						Eastern white pine	90	
44D Lew	2r	Slight	Moderate	Slight	Slight	Northern red oak	80	Yellow-poplar, eastern white pine.
						Yellow-poplar	90	
						Eastern white pine	90	
45C Lew	2x	Slight	Moderate	Slight	Slight	Northern red oak	80	Yellow-poplar, eastern white pine.
						Yellow-poplar	90	
						Eastern white pine	90	
45D Lew	2x	Slight	Moderate	Slight	Slight	Northern red oak	80	Yellow-poplar, eastern white pine.
						Yellow-poplar	90	
						Eastern white pine	90	
46B Lignum	3w	Slight	Moderate	Moderate	Slight	Virginia pine	74	Loblolly pine, sweetgum.
						Shortleaf pine	66	
						Southern red oak	68	
						Loblolly pine	76	
47C Louisburg	3o	Slight	Slight	Slight	Slight	Loblolly pine	77	Loblolly pine, Virginia pine.
						Shortleaf pine	69	
						Southern red oak	72	
						Yellow-poplar	84	
						Virginia pine	71	
						White oak	68	
47D, 47E Louisburg	3r	Moderate	Moderate	Slight	Slight	Loblolly pine	77	Loblolly pine, Virginia pine.
						Shortleaf pine	69	
						Southern red oak	72	
						Yellow-poplar	84	
						Virginia pine	71	
						White oak	68	
48D, 48E Louisburg	3x	Moderate	Severe	Slight	Slight	Loblolly pine	77	Loblolly pine, Virginia pine.
						Shortleaf pine	69	
						Southern red oak	70	
						Yellow-poplar	84	
						Virginia pine	71	
						White oak	68	
49B Manassas	2o	Slight	Slight	Slight	Slight	Virginia pine	76	Loblolly pine, yellow-poplar.
						Northern red oak	80	
						Shortleaf pine	80	
						Yellow-poplar	90	
50D Manor	2r	Severe	Moderate	Moderate	Slight	Black oak	80	Yellow-poplar, eastern white pine, loblolly pine.
						Yellow-poplar	90	
						Virginia pine	80	
						Shortleaf pine	80	
50E Manor	2r	Severe	Severe	Moderate	Slight	Black oak	80	Yellow-poplar, eastern white pine, loblolly pine.
						Yellow-poplar	90	
						Virginia pine	80	
						Shortleaf pine	80	
51B, 51C Manteo	4d	Slight	Slight	Severe	Moderate	Virginia pine	65	Loblolly pine, shortleaf pine.
						Shortleaf pine	60	
						Northern red oak	65	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

		Management concerns				Potential productivity		
Soil name and map symbol	Ordination symbol	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Trees to plant
51D Manteo	4d	Slight	Moderate	Severe	Moderate	Virginia pine Shortleaf pine Northern red oak	65 60 65	Loblolly pine, shortleaf pine.
51E Manteo	4d	Moderate	Severe	Severe	Moderate	Virginia pine Shortleaf pine Northern red oak	65 60 65	Loblolly pine, shortleaf pine.
52D Manteo	4d	Slight	Moderate	Severe	Moderate	Virginia pine Shortleaf pine Northern red oak	65 60 65	Loblolly pine, shortleaf pine.
52E Manteo	4d	Moderate	Severe	Severe	Moderate	Virginia pine Shortleaf pine Northern red oak	65 60 65	Loblolly pine, shortleaf pine.
53B, 53C Masada	3o	Slight	Slight	Slight	Slight	Southern red oak Virginia pine Shortleaf pine Yellow-poplar Eastern white pine Loblolly pine	70 70 70 85 80 82	Loblolly pine, yellow-poplar.
54B, 54C Mayodan	3o	Slight	Slight	Slight	Slight	Loblolly pine Shortleaf pine Yellow-poplar	82 75 79	Loblolly pine, Virginia pine, yellow-poplar.
55B McQueen	3o	Slight	Slight	Slight	Slight	Yellow-poplar Loblolly pine Shortleaf pine Sweetgum	80 80 70 80	Yellow-poplar, loblolly pine.
56B, 56C Meadowville	2o	Slight	Slight	Slight	Slight	Northern red oak Yellow-poplar Virginia pine Loblolly pine	76 90 80 90	Loblolly pine, yellow-poplar, black walnut.
57B Mount Lucas	2w	Slight	Moderate	Slight	Slight	Northern red oak Yellow-poplar Virginia pine	80 90 76	Yellow-poplar, Virginia pine.
58B, 58C Myersville	1o	Slight	Slight	Slight	Slight	Northern red oak Yellow-poplar	86 96	Yellow-poplar, black walnut, loblolly pine.
58D, 58E Myersville	2r	Moderate	Moderate	Slight	Slight	Northern red oak Yellow-poplar	85 95	Yellow-poplar, black walnut, loblolly pine.
59C Myersville	1o	Slight	Slight	Slight	Slight	Northern red oak Yellow-poplar	86 96	Yellow-poplar, black walnut, loblolly pine.
59D Myersville	2r	Moderate	Moderate	Slight	Slight	Northern red oak Yellow-poplar	85 95	Yellow-poplar, black walnut, loblolly pine.
59E Myersville	2r	Severe	Severe	Slight	Slight	Northern red oak Yellow-poplar	85 95	Yellow-poplar, black walnut, loblolly pine.
60C*:								
Myersville	1o	Slight	Slight	Slight	Slight	Northern red oak Yellow-poplar	86 96	Yellow-poplar, black walnut, loblolly pine.
Catoctin	4f	Slight	Slight	Moderate	Slight	Virginia pine Shortleaf pine Northern red oak Yellow-poplar	60 60 60 70	Virginia pine, eastern white pine, black walnut.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

		Management concerns				Potential productivity		
Soil name and map symbol	Ordination symbol	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	Trees to plant
60D*:								
Myersville	2r	Moderate	Moderate	Slight	Slight	Northern red oak	85	Yellow-poplar, black walnut, loblolly pine.
						Yellow-poplar	95	
Catoctin	4f	Moderate	Moderate	Moderate	Slight	Virginia pine	60	Virginia pine, eastern white pine.
						Shortleaf pine	60	
						Northern red oak	60	
						Yellow-poplar	70	
60E*:								
Myersville	2r	Severe	Severe	Slight	Slight	Northern red oak	85	Yellow-poplar, black walnut, loblolly pine.
						Yellow-poplar	95	
Catoctin	4r	Severe	Severe	Moderate	Slight	Virginia pine	60	Virginia pine, eastern white pine.
						Shortleaf pine	60	
						Northern red oak	60	
						Yellow-poplar	70	
61D*:								
Myersville	2r	Moderate	Moderate	Slight	Slight	Northern red oak	85	Yellow-poplar, black walnut, loblolly pine.
						Yellow-poplar	95	
Rock outcrop.								
61E*:								
Myersville	2r	Severe	Severe	Slight	Slight	Northern red oak	85	Yellow-poplar, black walnut, loblolly pine.
						Yellow-poplar	95	
Rock outcrop.								
62B, 62C Nason	3o	Slight	Slight	Slight	Slight	Northern red oak	66	Loblolly pine, yellow-poplar.
						Virginia pine	69	
						Shortleaf pine	66	
						Loblolly pine	80	
62D Nason	3r	Moderate	Moderate	Slight	Slight	Northern red oak	66	Loblolly pine, yellow-poplar.
						Virginia pine	69	
						Shortleaf pine	66	
						Loblolly pine	80	
63B, 64B Orange	4w	Slight	Moderate	Moderate	Moderate	Northern red oak	60	Loblolly pine.
						Virginia pine	60	
						Shortleaf pine	60	
						Loblolly pine	75	
65B, 65C Pacolet	3o	Slight	Slight	Slight	Slight	Loblolly pine	78	Loblolly pine, yellow-poplar.
						Shortleaf pine	70	
						Yellow-poplar	85	
66C Parker	3f	Slight	Slight	Moderate	Slight	Black oak	70	Eastern white pine, yellow-poplar.
						White oak	70	
						Scarlet oak	---	
						Chestnut oak	---	
						Yellow-poplar	80	
66D, 66E Parker	3x	Moderate	Moderate	Moderate	Slight	Black oak	70	Eastern white pine, yellow-poplar.
						White oak	70	
						Scarlet oak	---	
						Chestnut oak	---	
						Yellow-poplar	80	
67D, 67E Parker	3x	Slight	Moderate	Moderate	Slight	Black oak	70	Eastern white pine, yellow-poplar.
						White oak	70	
						Scarlet oak	---	
						Chestnut oak	---	
						Yellow-poplar	80	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
68B, 68C Penn	3o	Slight	Slight	Slight	Slight	Northern red oak Yellow-poplar Virginia pine Shortleaf pine	67 76 69 70	Yellow-poplar, loblolly pine.
68D Penn	3r	Moderate	Moderate	Slight	Slight	Northern red oak Yellow-poplar Virginia pine Shortleaf pine	67 76 69 70	Yellow-poplar, loblolly pine.
70C, 70D Porters	2x	Slight	Slight	Slight	Slight	Shortleaf pine Virginia pine Northern red oak Yellow-poplar	80 80 76 95	Yellow-poplar, black walnut.
70E Porters	2x	Moderate	Moderate	Slight	Slight	Shortleaf pine Virginia pine Northern red oak Yellow-poplar	80 80 76 95	Yellow-poplar, black walnut.
71B, 71C Rabun	2o	Slight	Slight	Slight	Slight	Eastern white pine	93	Northern red oak, eastern white pine, yellow-poplar, loblolly pine, black walnut.
71D, 71E Rabun	2r	Moderate	Moderate	Slight	Slight	Eastern white pine	93	Northern red oak, eastern white pine, yellow-poplar, loblolly pine, black walnut.
72B3, 72C3 Rabun	2c	Slight	Moderate	Moderate	Slight	Yellow-poplar Loblolly pine Shortleaf pine Virginia pine Eastern white pine	95 90 76 76 93	Northern red oak, yellow-poplar, loblolly pine, black walnut.
72D3 Rabun	2r	Slight	Severe	Moderate	Slight	Yellow-poplar Loblolly pine Shortleaf pine Virginia pine Eastern white pine	95 90 76 76 93	Northern red oak, yellow-poplar, loblolly pine, black walnut.
72E3 Rabun	2r	Moderate	Severe	Moderate	Slight	Yellow-poplar Loblolly pine Shortleaf pine Virginia pine Eastern white pine	95 90 76 76 93	Northern red oak, yellow-poplar, loblolly pine, black walnut.
73C, 73D Rabun	2x	Slight	Moderate	Slight	Slight	Eastern white pine	93	Northern red oak, eastern white pine, yellow-poplar, loblolly pine, black walnut.
73E Rabun	2x	Moderate	Moderate	Slight	Slight	Eastern white pine	93	Northern red oak, eastern white pine, yellow-poplar, loblolly pine, black walnut.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
74B, 74C Rapidan	2c	Slight	Moderate	Slight	Slight	Shortleaf pine	80	Loblolly pine, yellow-poplar, black walnut.
						Virginia pine	76	
						Northern red oak	80	
						Yellow-poplar	95	
74D Rapidan	2c	Moderate	Severe	Slight	Slight	Shortleaf pine	80	Loblolly pine, yellow-poplar, black walnut.
						Virginia pine	76	
						Northern red oak	80	
						Yellow-poplar	95	
75C3 Rapidan	3c	Slight	Moderate	Moderate	Slight	Shortleaf pine	70	Loblolly pine.
						Northern red oak	70	
						Virginia pine	70	
75D3 Rapidan	3c	Moderate	Severe	Moderate	Slight	Shortleaf pine	70	Loblolly pine.
						Northern red oak	70	
						Virginia pine	70	
76 Riverview	1w	Slight	Moderate	Moderate	Slight	Yellow-poplar	110	Loblolly pine, yellow-poplar, American sycamore.
						Loblolly pine	100	
						Sweetgum	100	
77*:								
Riverview	1w	Slight	Moderate	Moderate	Slight	Yellow-poplar	110	Loblolly pine, yellow-poplar, American sycanmore.
						Loblolly pine	100	
						Sweetgum	100	
Chewacla	1w	Slight	Moderate	Slight	Slight	Loblolly pine	96	Loblolly pine, American sycamore, yellow-poplar.
						Yellow-poplar	100	
						Sweetgum	97	
						Water oak	86	
						Green ash	---	
						Southern red oak	---	
78 Rowland	2w	Slight	Moderate	Slight	Slight	Northern red oak	80	Eastern white pine, yellow-poplar, loblolly pine.
						Yellow-poplar	95	
79B Starr	1o	Slight	Slight	Slight	Slight	Loblolly pine	101	Loblolly pine, eastern white pine, yellow-poplar, black walnut.
						Shortleaf pine	86	
						Yellow-poplar	103	
						Eastern white pine	96	
80B, 80C Tatum	3o	Slight	Slight	Slight	Slight	Northern red oak	72	Loblolly pine, eastern white pine, yellow-poplar.
						Virginia pine	68	
						Shortleaf pine	68	
						Loblolly pine	78	
						Yellow-poplar	83	
81B, 81C Thurmont	2o	Slight	Slight	Slight	Slight	Northern red oak	76	Eastern white pine, yellow-poplar.
						Yellow-poplar	88	
						Eastern white pine	88	
						Shortleaf pine	77	
81D Thurmont	2r	Moderate	Moderate	Slight	Slight	Northern red oak	76	Eastern white pine, yellow-poplar.
						Yellow-poplar	88	
						Eastern white pine	88	
						Shortleaf pine	77	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
82C---------------- Thurmont	2o	Slight	Slight	Slight	Slight	Northern red oak----	76	Eastern white pine, yellow-poplar, black walnut.
						Yellow-poplar-------	90	
						Eastern white pine--	90	
						Shortleaf pine------	77	
82D---------------- Thurmont	2r	Moderate	Moderate	Slight	Slight	Northern red oak----	76	Eastern white pine, yellow-poplar, black walnut.
						Yellow-poplar-------	90	
						Eastern white pine--	90	
						Shortleaf pine------	77	
83----------------- Toccoa	1o	Slight	Slight	Slight	Slight	Loblolly pine-------	96	Loblolly pine, yellow-poplar.
						Yellow-poplar-------	107	
						Sweetgum------------	100	
						Southern red oak----	---	
84B, 84C, 85C3----- Totier	2o	Slight	Slight	Slight	Slight	Northern red oak----	76	Loblolly pine, yellow-poplar.
						Yellow-poplar-------	90	
						Virginia pine-------	76	
						Shortleaf pine------	80	
86B, 86C----------- Turbeville	3o	Slight	Slight	Slight	Slight	Loblolly pine-------	80	Loblolly pine, yellow-poplar.
						Yellow-poplar-------	85	
						Virginia pine-------	70	
						Shortleaf pine------	70	
						Southern red oak----	70	
87B, 87C----------- Tusquitee	2o	Slight	Slight	Slight	Slight	Shortleaf pine------	76	Northern red oak, eastern white pine, black walnut, yellow-poplar.
						Eastern white pine--	90	
						Northern red oak----	80	
						Yellow-poplar-------	95	
						White oak-----------	---	
						Hickory-------------	---	
						Black locust--------	---	
						Black walnut--------	---	
87D---------------- Tusquitee	2r	Moderate	Moderate	Slight	Slight	Shortleaf pine------	76	Northern red oak, eastern white pine, black walnut, yellow-poplar.
						Eastern white pine--	90	
						Northern red oak----	80	
						Yellow-poplar-------	95	
						White oak-----------	---	
						Hickory-------------	---	
						Black locust--------	---	
						Black walnut--------	---	
89B, 89C, 90B, 90C- Unison	1o	Slight	Slight	Slight	Slight	Northern red oak----	86	Yellow-poplar, black walnut, eastern white pine.
						Yellow-poplar-------	96	
						Virginia pine-------	86	
90D---------------- Unison	1r	Slight	Moderate	Slight	Slight	Northern red oak----	86	Yellow-poplar, black walnut, eastern white pine.
						Yellow-poplar-------	96	
						Virginia pine-------	86	
92----------------- Wahee	2w	Slight	Moderate	Moderate	Slight	Loblolly pine-------	86	Loblolly pine.
						Sweetgum------------	90	
						Blackgum------------	---	
						Water oak-----------	---	
						Swamp chestnut oak--	---	
						Willow oak----------	---	
						Southern red oak----	---	
93C---------------- Watt	4d	Slight	Slight	Moderate	Moderate	Virginia pine-------	60	Virginia pine, loblolly pine.
						Shortleaf pine------	60	
						Northern red oak----	60	
93D, 93E----------- Watt	4r	Moderate	Moderate	Severe	Moderate	Virginia pine-------	60	Virginia pine, loblolly pine.
						Shortleaf pine------	60	
						Northern red oak----	60	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Common trees	Site index	
94B, 94C----------- Wedowee	3o	Slight	Slight	Slight	Slight	Loblolly pine--------	80	Loblolly pine, yellow-poplar.
						Virginia pine--------	70	
						Shortleaf pine-------	69	
						Southern red oak-----	70	
						Northern red oak-----	68	
						White oak------------	66	
95----------------- Wehadkee	1w	Slight	Severe	Severe	---------	Loblolly pine--------	102	Loblolly pine, yellow-poplar.
						Sweetgum-------------	93	
						Yellow-poplar--------	98	
						Willow oak-----------	90	
						Green ash------------	96	
						Water oak------------	86	
						White ash------------	88	
96B---------------- Worsham	2w	Slight	Severe	Severe	Slight	Northern red oak-----	80	Loblolly pine, yellow-poplar.
						Virginia pine--------	80	
						Loblolly pine--------	88	
						Pin oak--------------	85	
						Yellow-poplar--------	91	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1B Abell	Moderate: wetness.	Moderate: wetness.	Moderate: slope, small stones, wetness.	Slight	Slight.
2B Albemarle	Slight	Slight	Moderate: slope.	Slight	Slight.
2C Albemarle	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
2D Albemarle	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
3C Albemarle	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Severe: erodes easily.	Moderate: large stones, slope.
3D Albemarle	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: erodes easily.	Severe: slope.
3E Albemarle	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope, erodes easily.	Severe: slope.
4B Ashe	Slight	Slight	Severe: slope.	Slight	Moderate: thin layer.
4C Ashe	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: thin layer, slope.
4D Ashe	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
4E Ashe	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
5B Belvoir	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
6 Bermudian	Severe: flooding.	Slight	Moderate: flooding.	Severe: erodes easily.	Moderate: flooding.
7B Braddock	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
7C Braddock	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
7D Braddock	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
8C3 Braddock	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
9B Braddock	Moderate: large stones.	Moderate: large stones.	Moderate: slope, small stones.	Slight	Moderate: large stones.
9C Braddock	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Slight	Moderate: slope, large stones.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
9D Braddock	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
10 Buncombe	Severe: flooding.	Moderate: flooding, too sandy.	Severe: flooding.	Moderate: flooding, too sandy.	Severe: flooding, droughty.
11D*:					
Cataska	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: small stones, slope.
Hartleton	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: large stones, slope.
11E*:					
Cataska	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, slope.
Hartleton	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
12C Catoctin	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: droughty, slope.
12D Catoctin	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
12E Catoctin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
13C Catoctin	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.
13D Catoctin	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
13E Catoctin	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
14B Chester	Slight	Slight	Moderate: slope.	Slight	Moderate: large stones.
14C Chester	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: large stones, slope.
14D Chester	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
14E Chester	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
15C Chester	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
15D------------------- Chester	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
15E------------------- Chester	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
16-------------------- Chewacla	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
17-------------------- Craigsville	Moderate: large stones.	Moderate: large stones.	Severe: large stones.	Moderate: flooding.	Severe: large stones.
18B------------------- Creedmoor	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
19B------------------- Cullen	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Slight.
19C------------------- Cullen	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
19D------------------- Cullen	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
20B3------------------ Cullen	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Slight.
20C3------------------ Cullen	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
20D3------------------ Cullen	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
21B------------------- Culpeper	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Slight.
21C------------------- Culpeper	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
21D------------------- Culpeper	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
22C3------------------ Culpeper	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
23B------------------- Davidson	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Slight.
23C------------------- Davidson	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
24B------------------- Dogue	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, small stones, wetness.	Moderate: wetness.	Moderate: wetness.
25B------------------- Dyke	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Slight.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
25C------------------ Dyke	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
26B3----------------- Dyke	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Slight.
26C3----------------- Dyke	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
26D3----------------- Dyke	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
27B------------------ Elioak	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Moderate: large stones, droughty.
27C------------------ Elioak	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: large stones, droughty, slope.
27D------------------ Elioak	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
28C3----------------- Elioak	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: large stones, droughty, slope.
28D3----------------- Elioak	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
29B------------------ Fauquier	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Slight.
29C------------------ Fauquier	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
29D------------------ Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
29E------------------ Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
30C3----------------- Fauquier	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
30D3----------------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
31C------------------ Fauquier	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope, small stones.	Slight------------	Moderate: slope, large stones.
31D------------------ Fauquier	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: slope.
32B------------------ Fluvanna	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight------------	Slight.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
32C------------------- Fluvanna	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
33C------------------- Fluvanna	Moderate: slope, large stones, percs slowly.	Moderate: slope, large stones, percs slowly.	Severe: large stones, slope.	Slight------------	Moderate: large stones, slope.
34B------------------- Glenelg	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Slight.
34C------------------- Glenelg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
34D------------------- Glenelg	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
34E------------------- Glenelg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
35C*:					
Hartleton------------	Moderate: slope, large stones, small stones.	Moderate: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: large stones.
Cataska--------------	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: small stones.
36B------------------- Hayesville	Slight----------	Slight----------	Moderate: slope.	Slight------------	Slight.
36C------------------- Hayesville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
36D------------------- Hayesville	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
36E------------------- Hayesville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
37B3------------------ Hayesville	Slight----------	Slight----------	Moderate: slope.	Slight------------	Slight.
37C3------------------ Hayesville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
37D3------------------ Hayesville	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
37E3------------------ Hayesville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
38C------------------- Hayesville	Moderate: slope, large stones.	Moderate: slope.	Severe: large stones, slope.	Slight------------	Moderate: large stones, slope.
38D------------------- Hayesville	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
38E------------------- Hayesville	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
39C------------------- Hazel	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope, thin layer.
39D------------------- Hazel	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
39E------------------- Hazel	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
40D------------------- Hazel	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: slope.
40E------------------- Hazel	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
41B------------------- Hiwassee	Slight----------	Slight----------	Moderate: slope.	Slight------------	Slight.
41C------------------- Hiwassee	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
42B3------------------ Hiwassee	Slight----------	Slight----------	Moderate: slope.	Slight------------	Slight.
42C3------------------ Hiwassee	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
42D3------------------ Hiwassee	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
43B------------------- Klinesville	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones.	Severe: small stones, thin layer.
43C------------------- Klinesville	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.	Severe: small stones, thin layer.
43D------------------- Klinesville	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.	Severe: small stones, slope, thin layer.
43E------------------- Klinesville	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones.	Severe: small stones, slope, thin layer.
44C------------------- Lew	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones.	Severe: small stones, large stones.
44D------------------- Lew	Severe: slope, small stones.	Severe: slope, small stones	Severe: large stones, slope, small stones.	Severe: large stones, small stones.	Severe: small stones, large stones, slope.
45C------------------- Lew	Severe: large stones, small stones.	Severe: large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones.	Severe: small stones, large stones.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
45D Lew	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, small stones.	Severe: small stones, large stones, slope.
46B Lignum	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
47C Louisburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: large stones, slope.
47D Louisburg	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
47E Louisburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
48D Louisburg	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, large stones.	Severe: large stones, slope.
48E Louisburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
49B Manassas	Severe: flooding.	Moderate: wetness.	Moderate: slope, wetness.	Moderate: flooding.	Slight.
50D Manor	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
50E Manor	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
51B Manteo	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones, depth to rock.	Slight	Severe: thin layer.
51C Manteo	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones, slope, depth to rock.	Slight	Severe: thin layer.
51D Manteo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: small stones, slope, depth to rock.	Moderate: slope.	Severe: slope, thin layer.
51E Manteo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: small stones, slope, depth to rock.	Severe: slope.	Severe: slope, thin layer.
52D Manteo	Severe: slope, small stones, depth to rock.	Small stones, depth to rock.	Severe: small stones, slope, depth to rock.	Moderate: large stones, slope.	Severe: thin layer, small stones, slope.
52E Manteo	Severe: slope, small stones, depth to rock.	Small stones, depth to rock.	Severe: small stones, slope, depth to rock.	Severe: slope.	Severe: thin layer, small stones, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
53B Masada	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
53C Masada	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
54B Mayodan	Slight	Slight	Moderate: slope.	Slight	Slight.
54C Mayodan	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
55B McQueen	Severe: flooding.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
56B Meadowville	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
56C Meadowville	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
57B Mount Lucas	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, erodes easily.	Severe: wetness.
58B Myersville	Slight	Slight	Moderate: slope.	Severe: erodes easily.	Slight.
58C Myersville	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
58D Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
58E Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
59C Myersville	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.
59D Myersville	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
59E Myersville	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
60C*: Myersville	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.
Catoctin	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight	Moderate: large stones, slope.
60D*: Myersville	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
60D*: Catoctin	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
60E*: Myersville	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
Catoctin	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
61D*: Myersville	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: slope.	Severe: slope.
Rock outcrop.					
61E*: Myersville	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
Rock outcrop.					
62B Nason	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
62C Nason	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
62D Nason	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
63B Orange	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
64B Orange	Severe: wetness.	Moderate: wetness, large stones, percs slowly.	Severe: large stones, wetness.	Moderate: wetness.	Moderate: large stones, wetness.
65B Pacolet	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
65C Pacolet	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
66C Parker	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Severe: small stones.	Severe: small stones.
66D Parker	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: small stones.	Severe: small stones, slope.
66E Parker	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
67D Parker	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: small stones.	Severe: small stones, slope.
67E Parker	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
68B Penn	Slight	Slight	Moderate: slope.	Slight	Moderate: thin layer.
68C Penn	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: thin layer, slope.
68D Penn	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
69*. Pits					
70C Porters	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope, small stones.	Slight	Severe: large stones.
70D Porters	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: large stones, slope.
70E Porters	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: large stones, slope.
71B Rabun	Slight	Slight	Moderate: slope.	Slight	Slight.
71C Rabun	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
71D Rabun	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
71E Rabun	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
72B3 Rabun	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.	Moderate: too clayey.
72C3 Rabun	Severe: too clayey.	Severe: too clayey.	Severe: slope, too clayey.	Severe: too clayey.	Moderate: slope, too clayey.
72D3 Rabun	Severe: slope, too clayey.	Severe: slope, too clayey.	Severe: slope, too clayey.	Severe: too clayey.	Severe: slope.
72E3 Rabun	Severe: slope, too clayey.	Severe: slope, too clayey.	Severe: slope, too clayey.	Severe: too clayey, slope.	Severe: slope.
73C Rabun	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Slight	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
73D Rabun	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
73E Rabun	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
74B Rapidan	Slight	Slight	Moderate: slope.	Slight	Slight.
74C Rapidan	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
74D Rapidan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
75C3 Rapidan	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
75D3 Rapidan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
76 Riverview	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
77*:					
Riverview	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
Chewacla	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
78 Rowland	Severe: flooding, wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Severe: erodes easily.	Moderate: wetness, flooding.
79B Starr	Severe: flooding.	Slight	Moderate: slope, flooding.	Slight	Moderate: flooding.
80B Tatum	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
80C Tatum	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
81B Thurmont	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
81C Thurmont	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
81D Thurmont	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
82C Thurmont	Moderate: slope, large stones, small stones.	Moderate: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Slight	Moderate: small stones, large stones, slope.
82D Thurmont	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
83-------------------- Toccoa	Severe: flooding.	Slight----------	Moderate: flooding.	Slight------------	Moderate: flooding.
84B------------------- Totier	Slight----------	Slight----------	Moderate: slope, small stones.	Severe: erodes easily.	Slight.
84C, 85C3------------- Totier	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
86B------------------- Turbeville	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Moderate: large stones.
86C------------------- Turbeville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: large stones, slope.
87B------------------- Tusquitee	Slight----------	Slight----------	Severe: slope.	Slight------------	Slight.
87C------------------- Tusquitee	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
87D------------------- Tusquitee	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
88. Udorthents					
89B------------------- Unison	Slight----------	Slight----------	Moderate: slope, small stones.	Slight------------	Moderate: large stones.
89C------------------- Unison	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: large stones, slope.
90B------------------- Unison	Moderate: large stones.	Moderate: large stones.	Severe: large stones.	Moderate: large stones.	Moderate: large stones.
90C------------------- Unison	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Moderate: large stones.	Moderate: slope, large stones.
90D------------------- Unison	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Moderate: large stones, slope.	Severe: slope.
91*. Urban land					
92-------------------- Wahee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
93C------------------- Watt	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope.	Slight------------	Moderate: small stones, large stones, droughty.
93D------------------- Watt	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
93E------------------- Watt	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
94B Wedowee	Slight	Slight	Moderate: slope.	Slight	Slight.
94C Wedowee	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
95 Wehadkee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
96B Worsham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
1B. Abell										
2B----------------- Albemarle	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
2C----------------- Albemarle	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
2D----------------- Albemarle	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
3C----------------- Albemarle	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
3D----------------- Albemarle	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
3E. Albemarle										
4B, 4C, 4D---------- Ashe	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
4E----------------- Ashe	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
5B----------------- Belvoir	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
6------------------ Bermudian	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7B----------------- Braddock	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7C----------------- Braddock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
7D----------------- Braddock	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
8C3---------------- Braddock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
9B. Braddock										
9C, 9D------------- Braddock	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
10----------------- Buncombe	Very poor.	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
11D*: Cataska-----------	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
Hartleton----------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
11E*: Cataska	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
Hartleton.										
12C Catoctin	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
12D Catoctin	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
12E, 13C, 13D, 13E Catoctin	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
14B Chester	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
14C Chester	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
14D Chester	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
14E, 15C, 15D, 15E Chester	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
16 Chewacla	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
17 Craigsville	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
18B Creedmoor	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
19B Cullen	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
19C Cullen	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
19D Cullen	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
20B3 Cullen	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
20C3 Cullen	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
20D3 Cullen	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
21B Culpeper	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
21C Culpeper	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
21D Culpeper	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
22C3 Culpeper	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
23B Davidson	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
23C Davidson	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
24B Dogue	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
25B Dyke	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
25C Dyke	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
26B3 Dyke	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
26C3 Dyke	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
26D3 Dyke	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
27B Elioak	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
27C Elioak	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
27D Elioak	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
28C3 Elioak	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
28D3 Elioak	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
29B Fauquier	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
29C Fauquier	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
29D Fauquier	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
29E Fauquier	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
30C3 Fauquier	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
30D3 Fauquier	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
31C, 31D Fauquier	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
32B Fluvanna	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
32C Fluvanna	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
33C Fluvanna	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
34B Glenelg	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
34C Glenelg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
34D Glenelg	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
34E Glenelg	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
35C*:										
Hartleton	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Cataska	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
36B Hayesville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
36C Hayesville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
36D Hayesville	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
36E. Hayesville										
37B3 Hayesville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
37C3 Hayesville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
37D3 Hayesville	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
37E3. Hayesville										
38C, 38D, 38E Hayesville	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
39C, 39D Hazel	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
39E, 40D, 40E Hazel	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
41B Hiwassee	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
41C Hiwassee	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
42B3 Hiwassee	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
42C3 Hiwassee	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
42D3 Hiwassee	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
43B, 43C, 43D, 43E Klinesville	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
44C, 44D Lew	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
45C, 45D Lew	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
46B Lignum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
47C Louisburg	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
47D, 47E Louisburg	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
48D, 48E Louisburg	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
49B Manassas	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
50D Manor	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
50E Manor	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
51B, 51C, 51D, 51E, 52D, 52E Manteo	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
53B Masada	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
53C Masada	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
54B Mayodan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
54C Mayodan	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
55B McQueen	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
56B Meadowville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
56C Meadowville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
57B Mount Lucas	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
58B Myersville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
58C Myersville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
58D----------------- Myersville	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
58E----------------- Myersville	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
59C, 59D----------- Myersville	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
59E----------------- Myersville	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
60C*, 60D*:										
Myersville---------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Catoctin-----------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
60E*:										
Myersville---------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Catoctin-----------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
61D*:										
Myersville---------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Rock outcrop.										
61E*:										
Myersville---------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Rock outcrop.										
62B----------------- Nason	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
62C----------------- Nason	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
62D----------------- Nason	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
63B----------------- Orange	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
64B----------------- Orange	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
65B----------------- Pacolet	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
65C----------------- Pacolet	Poor	Fair	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
66C, 66D, 66E, 67D, 67E---------------- Parker	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
68B----------------- Penn	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
68C Penn	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
68D Penn	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
69*. Pits										
70C, 70D Porters	Poor	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
70E Porters	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
71B Rabun	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
71C Rabun	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
71D Rabun	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
71E Rabun	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
72B3 Rabun	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
72C3 Rabun	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
72D3 Rabun	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
72E3 Rabun	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
73C. Rabun										
73D Rabun	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
73E Rabun	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
74B Rapidan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
74C Rapidan	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
74D Rapidan	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
75C3 Rapidan	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
75D3 Rapidan	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
76 Riverview	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
77*:										
Riverview----------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Chewacla-----------	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
78----------------- Rowland	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
79B---------------- Starr	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
80B---------------- Tatum	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
80C---------------- Tatum	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
81B---------------- Thurmont	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
81C---------------- Thurmont	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
81D---------------- Thurmont	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
82C, 82D----------- Thurmont	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
83----------------- Toccoa	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
84B---------------- Totier	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
84C, 85C3---------- Totier	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
86B---------------- Turbeville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
86C---------------- Turbeville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
87B---------------- Tusquitee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
87C---------------- Tusquitee	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
87D---------------- Tusquitee	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
88. Udorthents										
89B---------------- Unison	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
89C---------------- Unison	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
90B---------------- Unison	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
90C, 90D----------- Unison	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
91*. Urban land										
92----------------- Wahee	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
93C---------------- Watt	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
93D---------------- Watt	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
93E. Watt										
94B---------------- Wedowee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
94C---------------- Wedowee	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
95----------------- Wehadkee	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
96B---------------- Worsham	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1B Abell	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.	Slight.
2B Albemarle	Moderate: depth to rock.	Slight	Moderate: depth to rock.	Moderate: slope.	Moderate: low strength, frost action.	Slight.
2C Albemarle	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.
2D Albemarle	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
3C Albemarle	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: large stones, slope.
3D, 3E Albemarle	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
4B Ashe	Moderate: depth to rock, slope.	Moderate: depth to rock, slope.	Severe: depth to rock.	Moderate: depth to rock, slope.	Moderate: depth to rock, slope.	Moderate: thin layer.
4C Ashe	Moderate: depth to rock, slope.	Moderate: depth to rock, slope.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope.	Moderate: thin layer, slope.
4D, 4E Ashe	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
5B Belvoir	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
6 Bermudian	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, low strength.	Moderate: flooding.
7B Braddock	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, frost action.	Slight.
7C Braddock	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.
7D Braddock	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
8C3 Braddock	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.
9B Braddock	Moderate: too clayey, large stones.	Moderate: shrink-swell, large stones.	Moderate: shrink-swell, large stones.	Moderate: shrink-swell, slope, large stones.	Moderate: low strength, frost action.	Moderate: large stones.
9C Braddock	Moderate: too clayey, large stones, slope.	Moderate: shrink-swell, slope, large stones.	Moderate: slope, shrink-swell, large stones.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope, large stones.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
9D Braddock	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
10 Buncombe	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, droughty.
11D*, 11E*:						
Cataska	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Hartleton	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.
12C Catoctin	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: slope, depth to rock.	Moderate: droughty, slope.
12D, 12E Catoctin	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
13C Catoctin	Severe: depth to rock.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Moderate: large stones, slope.
13D, 13E Catoctin	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
14B Chester	Slight	Slight	Slight	Moderate: slope.	Moderate: frost action.	Moderate: large stones.
14C Chester	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: large stones, slope.
14D, 14E Chester	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
15C Chester	Moderate: wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
15D, 15E Chester	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
16 Chewacla	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
17 Craigsville	Severe: cutbanks cave, large stones.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: large stones.
18B Creedmoor	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Moderate: wetness.
19B Cullen	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
19C Cullen	Moderate: too clayey, slope.	Moderate: slope, shrink-swell.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
19D Cullen	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
20B3 Cullen	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
20C3 Cullen	Moderate: too clayey, slope.	Moderate: slope, shrink-swell.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
20D3 Cullen	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
21B Culpeper	Moderate: depth to rock, too clayey.	Moderate: shrink-swell.	Moderate: depth to rock, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
21C Culpeper	Moderate: depth to rock, too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
21D Culpeper	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
22C3 Culpeper	Moderate: depth to rock, too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
23B Davidson	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
23C Davidson	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
24B Dogue	Severe: cutbanks cave, wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Moderate: wetness.
25B Dyke	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
25C Dyke	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
26B3 Dyke	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
26C3 Dyke	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
26D3 Dyke	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
27B--------------- Elioak	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: large stones, droughty.
27C--------------- Elioak	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: large stones, droughty, slope.
27D--------------- Elioak	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
28C3-------------- Elioak	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: large stones, droughty, slope.
28D3-------------- Elioak	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
29B--------------- Fauquier	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
29C--------------- Fauquier	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
29D, 29E---------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: slope.
30C3-------------- Fauquier	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
30D3-------------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: slope.
31C--------------- Fauquier	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope, large stones.
31D--------------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
32B--------------- Fluvanna	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
32C--------------- Fluvanna	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
33C--------------- Fluvanna	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
34B--------------- Glenelg	Slight----------	Slight----------	Slight----------	Moderate: slope.	Moderate: frost action.	Slight.
34C--------------- Glenelg	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
34D, 34E Glenelg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
35C*:						
Hartleton	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: large stones.
Cataska	Severe: depth to rock.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Severe: small stones.
36B Hayesville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Slight	Slight.
36C Hayesville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
36D, 36E Hayesville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
37B3 Hayesville	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Slight	Slight.
37C3 Hayesville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
37D3, 37E3 Hayesville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
38C Hayesville	Moderate: too clayey, slope.	Moderate: slope.	Severe: slope.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
38D, 38E Hayesville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
39C Hazel	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.	Moderate: slope, thin layer.
39D, 39E Hazel	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
40D, 40E Hazel	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
41B Hiwassee	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
41C Hiwassee	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
42B3 Hiwassee	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
42C3 Hiwassee	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
42D3 Hiwassee	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
43B--------------- Klinesville	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock, frost action.	Severe: small stones, thin layer.
43C--------------- Klinesville	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.	Severe: small stones, thin layer.
43D, 43E---------- Klinesville	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope, thin layer.
44C--------------- Lew	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: small stones, large stones.
44D--------------- Lew	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
45C--------------- Lew	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: small stones, large stones.
45D--------------- Lew	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
46B--------------- Lignum	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.	Moderate: wetness.
47C--------------- Louisburg	Moderate: depth to rock.	Moderate: slope.	Moderate: depth to rock.	Severe: slope.	Moderate: slope.	Moderate: large stones, slope.
47D, 47E---------- Louisburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
48D, 48E---------- Louisburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
49B--------------- Manassas	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength.	Slight.
50D, 50E---------- Manor	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
51B--------------- Manteo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: thin layer.
51C--------------- Manteo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: thin layer.
51D, 51E---------- Manteo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, thin layer.
52D, 52E---------- Manteo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: thin layer, small stones, slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
53B Masada	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Slight.
53C Masada	Moderate: too clayey, slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
54B Mayodan	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
54C Mayodan	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
55B McQueen	Moderate: too clayey.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength.	Slight.
56B Meadowville	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
56C Meadowville	Moderate: slope, wetness.	Moderate: shrink-swell, slope.	Moderate: wetness, slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
57B Mount Lucas	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.
58B Myersville	Slight	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
58C Myersville	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
58D, 58E Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
59C Myersville	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
59D, 59E Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength.	Severe: slope.
60C*: Myersville	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
Catoctin	Severe: depth to rock.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Moderate: large stones, slope.
60D*, 60E*: Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength.	Severe: slope.
Catoctin	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
61D*, 61E*: Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
61D*, 61E*: Rock outcrop.						
62B Nason	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Slight.
62C Nason	Moderate: slope, too clayey.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
62D Nason	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: slope.
63B Orange	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
64B Orange	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, shrink-swell.	Moderate: large stones, wetness.
65B Pacolet	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
65C Pacolet	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
66C Parker	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.	Severe: small stones.
66D, 66E, 67D, 67E Parker	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
68B Penn	Moderate: depth to rock.	Slight	Moderate: depth to rock.	Moderate: slope.	Moderate: frost action.	Moderate: thin layer.
68C Penn	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: thin layer, slope.
68D Penn	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
69*. Pits						
70C Porters	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope.	Severe: large stones.
70D, 70E Porters	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
71B Rabun	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
71C Rabun	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
71D, 71E Rabun	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
72B3 Rabun	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Moderate: too clayey.
72C3 Rabun	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope, too clayey.
72D3, 72E3, 73C, 73D, 73E Rabun	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
74B Rapidan	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, low strength.	Slight.
74C Rapidan	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: low strength, shrink-swell, slope.	Moderate: slope.
74D Rapidan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
75C3 Rapidan	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: low strength, shrink-swell, slope.	Moderate: slope.
75D3 Rapidan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
76 Riverview	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
77*:						
Riverview	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
Chewacla	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
78 Rowland	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, frost action.	Moderate: wetness, flooding.
79B Starr	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
80B Tatum	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
80C Tatum	Moderate: slope, too clayey.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
81B Thurmont	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: slope.	Moderate: frost action.	Slight.
81C Thurmont	Moderate: wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
81D Thurmont	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
82C---------------- Thurmont	Moderate: wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, large stones, slope.
82D---------------- Thurmont	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
83----------------- Toccoa	Moderate: wetness, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
84B---------------- Totier	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
84C, 85C3---------- Totier	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
86B---------------- Turbeville	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: large stones.
86C---------------- Turbeville	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
87B---------------- Tusquitee	Slight---------	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
87C---------------- Tusquitee	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
87D---------------- Tusquitee	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
88. Udorthents						
89B---------------- Unison	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Moderate: large stones.
89C---------------- Unison	Moderate: too clayey, slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
90B---------------- Unison	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Moderate: large stones.
90C---------------- Unison	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope, large stones.
90D---------------- Unison	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
91*. Urban land						
92----------------- Wahee	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
93C---------------- Watt	Severe: depth to rock.	Moderate: depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: low strength, large stones.	Moderate: small stones, large stones, droughty.
93D, 93E----------- Watt	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
94B---------------- Wedowee	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
94C---------------- Wedowee	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
95----------------- Wehadkee	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.
96B---------------- Worsham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, low strength.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1B------------------ Abell	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Fair: too clayey, wetness.
2B------------------ Albemarle	Moderate: depth to rock.	Severe: seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Fair: area reclaim, too clayey.
2C------------------ Albemarle	Moderate: depth to rock, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage.	Severe: seepage.	Fair: area reclaim, too clayey, slope.
2D------------------ Albemarle	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
3C------------------ Albemarle	Moderate: depth to rock, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage.	Severe: seepage.	Fair: area reclaim, too clayey, slope.
3D, 3E-------------- Albemarle	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
4B------------------ Ashe	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, thin layer.
4C------------------ Ashe	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, thin layer.
4D, 4E-------------- Ashe	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, slope, thin layer.
5B------------------ Belvoir	Severe: percs slowly, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: area reclaim, wetness.
6------------------- Bermudian	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: too clayey, small stones, wetness.
7B------------------ Braddock	Moderate: percs slowly.	Severe: seepage.	Severe: seepage, too clayey.	Slight------------	Poor: too clayey, hard to pack.
7C------------------ Braddock	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
7D------------------ Braddock	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
8C3 Braddock	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
9B Braddock	Moderate: percs slowly, large stones.	Severe: seepage.	Severe: seepage, too clayey.	Slight	Poor: too clayey, hard to pack, small stones.
9C Braddock	Moderate: percs slowly, slope, large stones.	Severe: seepage, slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack, small stones.
9D Braddock	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, small stones.
10 Buncombe	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, too sandy.
11D*, 11E*:					
Cataska	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Hartleton	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: large stones, slope.
12C Catoctin	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: area reclaim, small stones.
12D, 12E Catoctin	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Poor: area reclaim, small stones, slope.
13C Catoctin	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, small stones.
13D, 13E Catoctin	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
14B Chester	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Fair: small stones.
14C Chester	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: small stones, slope.
14D, 14E Chester	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
15C----------------- Chester	Moderate: wetness, percs slowly, slope.	Severe: slope.	Severe: wetness.	Moderate: slope.	Fair: slope.
15D, 15E------------ Chester	Severe: slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Poor: slope.
16------------------ Chewacla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
17------------------ Craigsville	Severe: flooding, poor filter.	Severe: seepage, flooding, large stones.	Severe: flooding, seepage, large stones.	Severe: flooding, seepage.	Poor: large stones, seepage.
18B----------------- Creedmoor	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
19B----------------- Cullen	Moderate: percs slowly.	Moderate: slope, seepage.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
19C----------------- Cullen	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
19D----------------- Cullen	Severe: slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
20B3---------------- Cullen	Moderate: percs slowly.	Moderate: slope, seepage.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
20C3---------------- Cullen	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
20D3---------------- Cullen	Severe: slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
21B----------------- Culpeper	Moderate: depth to rock, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock.	Moderate: depth to rock.	Fair: area reclaim, too clayey.
21C----------------- Culpeper	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock.	Moderate: depth to rock, slope.	Fair: area reclaim, slope, too clayey.
21D----------------- Culpeper	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
22C3---------------- Culpeper	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock.	Moderate: depth to rock, slope.	Fair: area reclaim, slope, too clayey.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
23B Davidson	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
23C Davidson	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
24B Dogue	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: seepage, wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
25B Dyke	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
25C Dyke	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
26B3 Dyke	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
26C3 Dyke	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
26D3 Dyke	Severe: slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, too clayey, hard to pack.
27B Elioak	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
27C Elioak	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
27D Elioak	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
28C3 Elioak	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
28D3 Elioak	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
29B Fauquier	Moderate: depth to rock, percs slowly.	Moderate: slope, seepage, depth to rock.	Severe: too clayey, depth to rock.	Moderate: depth to rock.	Poor: too clayey, hard to pack, small stones.
29C Fauquier	Moderate: slope, percs slowly, depth to rock.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock.	Poor: too clayey, hard to pack, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
29D, 29E------------ Fauquier	Severe: slope.	Severe: slope.	Severe: slope, too clayey, depth to rock.	Severe: slope.	Poor: too clayey, hard to pack, small stones.
30C3---------------- Fauquier	Moderate: slope, percs slowly, depth to rock.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock.	Poor: too clayey, hard to pack, small stones.
30D3---------------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope, too clayey, depth to rock.	Severe: slope.	Poor: too clayey, hard to pack, small stones.
31C----------------- Fauquier	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack, small stones.
31D----------------- Fauquier	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, small stones.
32B----------------- Fluvanna	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
32C, 33C------------ Fluvanna	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
34B----------------- Glenelg	Moderate: depth to rock, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock.	Moderate: depth to rock.	Poor: small stones.
34C----------------- Glenelg	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock.	Moderate: depth to rock, slope.	Poor: small stones.
34D, 34E------------ Glenelg	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
35C*:					
Hartleton----------	Severe: large stones.	Severe: seepage, slope, large stones.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: large stones.
Cataska------------	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, small stones.
36B----------------- Hayesville	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: seepage, too clayey.	Slight-----------	Poor: too clayey, hard to pack.
36C----------------- Hayesville	Moderate: percs slowly, slope.	Severe: slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
36D, 36E Hayesville	Severe: slope.	Severe: slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
37B3 Hayesville	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: seepage, too clayey.	Slight	Poor: too clayey, hard to pack.
37C3 Hayesville	Moderate: percs slowly, slope.	Severe: slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
37D3, 37E3 Hayesville	Severe: slope.	Severe: slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
38C Hayesville	Moderate: percs slowly.	Severe: slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
38D, 38E Hayesville	Severe: slope.	Severe: slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
39C Hazel	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, thin layer.
39D, 39E Hazel	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, slope, thin layer.
40D, 40E Hazel	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, slope, seepage.	Poor: area reclaim, small stones, slope.
41B Hiwassee	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
41C Hiwassee	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
42B3 Hiwassee	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
42C3 Hiwassee	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
42D3 Hiwassee	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
43B Klinesville	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, seepage, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
43C Klinesville	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, seepage, small stones.
43D, 43E Klinesville	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, seepage, small stones.
44C Lew	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: seepage.	Poor: hard to pack, large stones.
44D Lew	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: seepage, slope.	Poor: hard to pack, large stones, slope.
45C Lew	Severe: large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: seepage.	Poor: hard to pack, large stones.
45D Lew	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: seepage, slope.	Poor: hard to pack, large stones, slope.
46B Lignum	Severe: percs slowly, wetness.	Severe: wetness.	Severe: depth to rock, wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
47C Louisburg	Moderate: depth to rock.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: slope.
47D, 47E Louisburg	Severe: slope.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: slope.
48D, 48E Louisburg	Severe: slope.	Severe: seepage, large stones.	Severe: seepage, large stones.	Severe: seepage.	Poor: slope.
49B Manassas	Moderate: flooding, depth to rock, wetness.	Severe: flooding, seepage, wetness.	Severe: seepage, depth to rock.	Severe: seepage, wetness.	Fair: area reclaim, too clayey, wetness.
50D, 50E Manor	Severe: slope.	Severe: slope, seepage.	Severe: seepage, slope.	Severe: slope, seepage.	Poor: slope.
51B Manteo	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: area reclaim, small stones.
51C Manteo	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: area reclaim, small stones.
51D, 51E, 52D, 52E Manteo	Severe: depth to rock, slope.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage, depth to rock.	Poor: slope, area reclaim, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
53B----------------- Masada	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight-----------	Poor: too clayey, hard to pack.
53C----------------- Masada	Moderate: slope, percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
54B----------------- Mayodan	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Severe: seepage.	Fair: too clayey, hard to pack.
54C----------------- Mayodan	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Severe: seepage.	Fair: too clayey, hard to pack, slope.
55B----------------- McQueen	Severe: percs slowly.	Slight-----------	Severe: too clayey.	Moderate: flooding.	Poor: too clayey.
56B----------------- Meadowville	Severe: wetness.	Severe: seepage, wetness.	Severe: depth to rock, seepage, wetness.	Severe: seepage, wetness.	Fair: area reclaim, too clayey.
56C----------------- Meadowville	Severe: wetness.	Severe: slope, seepage, wetness.	Severe: depth to rock, seepage, wetness.	Severe: seepage, wetness.	Fair: area reclaim, too clayey, slope.
57B----------------- Mount Lucas	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: depth to rock, seepage, wetness.	Severe: seepage, wetness.	Poor: small stones, wetness.
58B----------------- Myersville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey, small stones.
58C----------------- Myersville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, small stones, slope.
58D, 58E------------ Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
59C----------------- Myersville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey, large stones.	Moderate: slope.	Fair: too clayey, small stones.
59D, 59E------------ Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
60C*:					
Myersville----------	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey, large stones.	Moderate: slope.	Fair: too clayey, small stones.
Catoctin------------	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
60D*, 60E*:					
Myersville----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Catoctin------------	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
61D*, 61E*:					
Myersville----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Rock outcrop.					
62B----------------- Nason	Moderate: depth to rock, percs slowly.	Moderate: slope, seepage, depth to rock.	Severe: too clayey, depth to rock.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
62C----------------- Nason	Moderate: slope, depth to rock, percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock.	Poor: too clayey, hard to pack.
62D----------------- Nason	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: slope, too clayey, hard to pack.
63B----------------- Orange	Severe: percs slowly, wetness.	Severe: wetness.	Severe: depth to rock, wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
64B----------------- Orange	Severe: wetness, percs slowly.	Severe: wetness.	Severe: depth to rock, wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
65B----------------- Pacolet	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----------	Fair: too clayey.
65C----------------- Pacolet	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
66C----------------- Parker	Severe: poor filter.	Severe: seepage, slope.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: seepage, small stones.
66D, 66E, 67D, 67E-- Parker	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
68B----------------- Penn	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, small stones.
68C----------------- Penn	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, small stones.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
68D Penn	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
69*. Pits					
70C Porters	Moderate: depth to rock, slope.	Severe: slope.	Severe: depth to rock, seepage.	Severe: seepage.	Fair: area reclaim, small stones, slope.
70D, 70E Porters	Severe: slope.	Severe: slope.	Severe: depth to rock, seepage, slope.	Severe: slope.	Poor: slope.
71B Rabun	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
71C Rabun	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
71D, 71E Rabun	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
72B3 Rabun	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
72C3 Rabun	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
72D3, 72E3, 73C, 73D, 73E Rabun	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
74B Rapidan	Moderate: depth to rock.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock, too clayey.	Slight	Fair: too clayey.
74C Rapidan	Moderate: slope, depth to rock.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: slope.	Fair: slope, too clayey.
74D Rapidan	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: slope.
75C3 Rapidan	Moderate: slope, depth to rock.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: slope.	Fair: slope, too clayey.
75D3 Rapidan	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: slope.
76 Riverview	Severe: flooding, wetness.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Fair: wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
77*:					
Riverview	Severe: flooding, wetness.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Fair: wetness.
Chewacla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
78 Rowland	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: wetness.
79B Starr	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Fair: too clayey.
80B Tatum	Moderate: depth to rock, percs slowly.	Moderate: slope, seepage, depth to rock.	Severe: too clayey, depth to rock.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
80C Tatum	Moderate: slope, depth to rock, percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock.	Poor: too clayey, hard to pack.
81B Thurmont	Moderate: wetness, percs slowly.	Moderate: seepage, slope, wetness.	Severe: wetness.	Moderate: wetness.	Fair: small stones.
81C Thurmont	Moderate: wetness, percs slowly, slope.	Severe: slope.	Severe: wetness.	Moderate: slope, wetness.	Fair: small stones, slope.
81D Thurmont	Severe: slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Poor: slope.
82C Thurmont	Moderate: wetness, percs slowly, slope.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: small stones, slope.
82D Thurmont	Severe: slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Poor: slope.
83 Toccoa	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Good.
84B Totier	Moderate: depth to rock, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
84C, 85C3 Totier	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
86B Turbeville	Moderate: percs slowly.	Moderate: slope, large stones.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
86C Turbeville	Moderate: slope, percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
87B Tusquitee	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
87C Tusquitee	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope.
87D Tusquitee	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope, seepage.	Poor: slope.
88. Udorthents					
89B Unison	Moderate: percs slowly.	Severe: seepage.	Severe: too clayey, seepage.	Slight	Poor: too clayey, hard to pack.
89C Unison	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: too clayey, seepage.	Moderate: slope.	Poor: too clayey, hard to pack.
90B Unison	Moderate: percs slowly.	Severe: seepage.	Severe: too clayey, seepage.	Slight	Poor: too clayey, hard to pack.
90C Unison	Moderate: percs slowly, slope.	Severe: slope, seepage.	Severe: too clayey, seepage.	Moderate: slope.	Poor: too clayey, hard to pack.
90D Unison	Severe: slope.	Severe: slope, seepage.	Severe: slope, too clayey, seepage.	Severe: slope.	Poor: slope, too clayey, hard to pack.
91*. Urban land					
92 Wahee	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
93C Watt	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, small stones.
93D, 93E Watt	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, slope, small stones.
94B Wedowee	Moderate: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey, thin layer.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
94C------------------ Wedowee	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope, thin layer.
95------------------- Wehadkee	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
96B------------------ Worsham	Severe: percs slowly, wetness.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1B-------------------- Abell	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
2B-------------------- Albemarle	Fair: area reclaim, low strength, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
2C-------------------- Albemarle	Fair: area reclaim, low strength, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
2D-------------------- Albemarle	Fair: area reclaim, low strength, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
3C-------------------- Albemarle	Fair: area reclaim, low strength, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
3D-------------------- Albemarle	Fair: area reclaim, low strength, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
3E-------------------- Albemarle	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
4B, 4C---------------- Ashe	Poor: area reclaim, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, thin layer.
4D-------------------- Ashe	Poor: area reclaim, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
4E-------------------- Ashe	Poor: area reclaim, thin layer, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
5B-------------------- Belvoir	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
6--------------------- Bermudian	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
7B, 7C---------------- Braddock	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
7D-------------------- Braddock	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, slope.
8C3------------------- Braddock	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
9B, 9C---------------- Braddock	Fair: low strength, large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
9D-------------------- Braddock	Fair: low strength, large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, slope.
10-------------------- Buncombe	Good------------------	Probable--------------	Improbable: too sandy.	Fair: too sandy.
11D*:				
Cataska---------------	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Hartleton-------------	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
11E*:				
Cataska---------------	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Hartleton-------------	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
12C------------------- Catoctin	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
12D------------------- Catoctin	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
12E------------------- Catoctin	Poor: slope, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
13C------------------- Catoctin	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
13D------------------- Catoctin	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
13E------------------- Catoctin	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
14B, 14C-------------- Chester	Good------------------	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
14D------------------- Chester	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
14E------------------- Chester	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
15C------------------- Chester	Good------------------	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
15D Chester	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
15E Chester	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
16 Chewacla	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
17 Craigsville	Fair: large stones.	Improbable: large stones.	Improbable: large stones.	Poor: large stones, area reclaim.
18B Creedmoor	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
19B, 19C Cullen	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
19D Cullen	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
20B3, 20C3 Cullen	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
20D3 Cullen	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
21B, 21C Culpeper	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
21D Culpeper	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
22C3 Culpeper	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
23B, 23C Davidson	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
24B Dogue	Fair: wetness.	Probable	Improbable: too sandy.	Poor: thin layer.
25B, 25C, 26B3, 26C3 Dyke	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
26D3 Dyke	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
27B, 27C Elioak	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
27D Elioak	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
28C3 Elioak	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
28D3 Elioak	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
29B, 29C Fauquier	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
29D Fauquier	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
29E Fauquier	Poor: slope, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
30C3 Fauquier	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
30D3 Fauquier	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
31C Fauquier	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
31D Fauquier	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
32B, 32C, 33C Fluvanna	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
34B, 34C Glenelg	Fair: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
34D Glenelg	Fair: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
34E Glenelg	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
35C*:				
Hartleton	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim.
Cataska	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
36B, 36C Hayesville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
36D Hayesville	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
36E Hayesville	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
37B3, 37C3 Hayesville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
37D3------------------ Hayesville	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
37E3------------------ Hayesville	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
38C------------------- Hayesville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
38D------------------- Hayesville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
38E------------------- Hayesville	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
39C------------------- Hazel	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
39D------------------- Hazel	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
39E------------------- Hazel	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
40D------------------- Hazel	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
40E------------------- Hazel	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
41B, 41C, 42B3, 42C3-- Hiwassee	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
42D3------------------ Hiwassee	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
43B, 43C-------------- Klinesville	Poor: area reclaim.	Improbable: thin layer.	Improbable: thin layer.	Poor: area reclaim, small stones.
43D------------------- Klinesville	Poor: area reclaim.	Improbable: thin layer.	Improbable: thin layer.	Poor: area reclaim, small stones, slope.
43E------------------- Klinesville	Poor: area reclaim, slope.	Improbable: thin layer.	Improbable: thin layer.	Poor: area reclaim, small stones, slope.
44C------------------- Lew	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim.
44D------------------- Lew	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
45C Lew	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim.
45D Lew	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
46B Lignum	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
47C Louisburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
47D Louisburg	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
47E Louisburg	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
48D Louisburg	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
48E Louisburg	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
49B Manassas	Fair: area reclaim, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
50D Manor	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
50E Manor	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
51B, 51C Manteo	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
51D Manteo	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, area reclaim, small stones.
51E Manteo	Poor: slope, thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, area reclaim, small stones.
52D Manteo	Poor: thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, area reclaim, small stones.
52E Manteo	Poor: slope, thin layer, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, area reclaim, small stones.
53B, 53C Masada	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
54B Mayodan	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
54C Mayodan	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
55B McQueen	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
56B Meadowville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
56C Meadowville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
57B Mount Lucas	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, wetness.
58B Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
58C Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
58D Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
58E Myersville	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
59C Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
59D Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
59E Myersville	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
60C*:				
Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Catoctin	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
60D*:				
Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Catoctin	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
60E*:				
Myersville	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Catoctin	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
61D*:				
Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Rock outcrop.				
61E*:				
Myersville	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Rock outcrop.				
62B, 62C Nason	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, area reclaim.
62D Nason	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope, area reclaim.
63B Orange	Poor: low strength, shrink-swell, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
64B Orange	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, thin layer.
65B, 65C Pacolet	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
66C Parker	Fair: area reclaim.	Improbable: small stones.	Probable	Poor: small stones, area reclaim.
66D Parker	Fair: area reclaim, slope.	Improbable: small stones.	Probable	Poor: small stones, area reclaim, slope.
66E Parker	Poor: slope.	Improbable: small stones.	Probable	Poor: small stones, area reclaim, slope.
67D Parker	Fair: area reclaim, slope.	Improbable: small stones.	Probable	Poor: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
67E Parker	Poor: slope.	Improbable: small stones.	Probable	Poor: small stones, area reclaim, slope.
68B, 68C Penn	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
68D Penn	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
69*. Pits				
70C Porters	Fair: area reclaim, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: large stones, small stones, slope.
70D Porters	Fair: area reclaim, thin layer, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
70E Porters	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
71B, 71C Rabun	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
71D Rabun	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
71E Rabun	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
72B3, 72C3 Rabun	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
72D3 Rabun	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
72E3 Rabun	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
73C Rabun	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
73D Rabun	Fair: slope, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
73E Rabun	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
74B, 74C Rapidan	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
74D Rapidan	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
75C3: Rapidan	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
75D3: Rapidan	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
76: Riverview	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
77*:				
Riverview	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Chewacla	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
78: Rowland	Fair: wetness, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
79B: Starr	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
80B, 80C: Tatum	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
81B: Thurmont	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
81C: Thurmont	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
81D: Thurmont	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
82C: Thurmont	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
82D: Thurmont	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
83: Toccoa	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
84B, 84C, 85C3: Totier	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
86B, 86C: Turbeville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
87B, 87C: Tusquitee	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
87D-------------------- Tusquitee	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
88. Udorthents				
89B, 89C, 90B, 90C---- Unison	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
90D-------------------- Unison	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
91*. Urban land				
92--------------------- Wahee	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
93C-------------------- Watt	Poor: area reclaim.	Improbable-----------	Improbable-----------	Poor: small stones, thin layer.
93D-------------------- Watt	Poor: area reclaim.	Improbable-----------	Improbable-----------	Poor: small stones, thin layer, slope.
93E-------------------- Watt	Poor: area reclaim, slope.	Improbable-----------	Improbable-----------	Poor: small stones, thin layer, slope.
94B, 94C--------------- Wedowee	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
95--------------------- Wehadkee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
96B-------------------- Worsham	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, thin layer.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1B Abell	Severe: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Slope	Wetness, slope.	Wetness	Favorable.
2B Albemarle	Severe: seepage.	Severe: piping.	Deep to water	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
2C, 2D, 3C, 3D, 3E Albemarle	Severe: seepage, slope.	Severe: piping.	Deep to water	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
4B Ashe	Severe: seepage.	Moderate: piping, thin layer.	Severe: no water.	Deep to water	Depth to rock, slope.	Depth to rock	Depth to rock.
4C Ashe	Severe: seepage.	Moderate: piping, thin layer.	Severe: no water.	Deep to water	Depth to rock, slope.	Depth to rock, slope.	Depth to rock, slope.
4D, 4E Ashe	Severe: seepage, slope.	Moderate: piping, thin layer.	Severe: no water.	Deep to water	Depth to rock, slope.	Depth to rock, slope.	Depth to rock, slope.
5B Belvoir	Moderate: seepage, slope.	Moderate: seepage, piping, wetness.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, rooting depth.	Erodes easily, wetness, rooting depth.	Wetness, erodes easily, rooting depth.
6 Bermudian	Severe: seepage.	Severe: piping.	Moderate: deep to water, cutbanks cave.	Deep to water	Flooding, erodes easily.	Favorable	Favorable.
7B Braddock	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
7C, 7D, 8C3 Braddock	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
9B Braddock	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Large stones, slope.	Large stones	Large stones.
9C, 9D Braddock	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Large stones, slope.	Slope, large stones.	Large stones, slope.
10 Buncombe	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy	Droughty, rooting depth.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
11D*, 11E*:							
Cataska	Severe: depth to rock, slope.	Severe: seepage.	Severe: no water.	Deep to water	Large stones, depth to rock, slope.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Hartleton	Severe: seepage, slope.	Severe: piping, large stones.	Severe: no water.	Deep to water	Large stones, droughty, slope.	Slope, large stones.	Large stones, slope, droughty.
12C, 12D, 12E Catoctin	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
13C, 13D, 13E Catoctin	Severe: seepage, slope.	Moderate: seepage, piping, large stones.	Severe: no water.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
14B Chester	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Erodes easily	Erodes easily.
14C, 14D, 14E, 15C, 15D, 15E Chester	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope, erodes easily.	Slope, erodes easily.
16 Chewacla	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness, flooding.	Wetness	Wetness.
17 Craigsville	Severe: seepage.	Severe: seepage, large stones.	Severe: no water.	Deep to water	Large stones, droughty.	Large stones, too sandy.	Large stones, droughty.
18B Creedmoor	Slight	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
19B Cullen	Moderate: seepage, slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
19C, 19D Cullen	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
20B3 Cullen	Moderate: seepage, slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
20C3, 20D3 Cullen	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
21B---------------- Culpeper	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
21C, 21D, 22C3---- Culpeper	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
23B---------------- Davidson	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope-----------	Favorable-------	Favorable.
23C---------------- Davidson	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope-----------	Slope-----------	Slope.
24B---------------- Dogue	Moderate: seepage, slope.	Severe: wetness.	Severe: slow refill, cutbanks cave.	Slope-----------	Wetness, slope, erodes easily.	Erodes easily, wetness.	Erodes easily.
25B---------------- Dyke	Moderate: seepage, slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
25C---------------- Dyke	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
26B3--------------- Dyke	Moderate: seepage, slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
26C3, 26D3--------- Dyke	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
27B---------------- Elioak	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Droughty, slope.	Favorable-------	Droughty.
27C, 27D, 28C3, 28D3-------------- Elioak	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Droughty, slope.	Slope-----------	Slope, droughty.
29B---------------- Fauquier	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope-----------	Favorable-------	Favorable.
29C, 29D, 29E, 30C3, 30D3, 31C, 31D-------------- Fauquier	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope-----------	Slope-----------	Slope.
32B---------------- Fluvanna	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Percs slowly, slope, erodes easily.	Erodes easily, percs slowly.	Erodes easily, percs slowly.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
32C Fluvanna	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Percs slowly, slope, erodes easily.	Slope, erodes easily, percs slowly.	Slope, erodes easily, percs slowly.
33C Fluvanna	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Percs slowly, slope.	Slope, large stones, percs slowly.	Large stones, slope, percs slowly.
34B Glenelg	Moderate: seepage, depth to rock, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
34C, 34D, 34E Glenelg	Severe: slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
35C*:							
Hartleton	Severe: seepage, slope.	Severe: piping, large stones.	Severe: no water.	Deep to water	Large stones, droughty, slope.	Slope, large stones.	Large stones, slope, droughty.
Cataska	Severe: depth to rock, slope.	Severe: seepage.	Severe: no water.	Deep to water	Large stones, depth to rock, slope.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
36B Hayesville	Moderate: seepage.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
36C Hayesville	Moderate: seepage.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
36D, 36E Hayesville	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
37B3 Hayesville	Moderate: seepage.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
37C3 Hayesville	Moderate: seepage.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
37D3, 37E3, 38C, 38D, 38E Hayesville	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
39C, 39D Hazel	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Depth to rock, slope.	Slope, large stones, depth to rock.	Slope, erodes easily.
39E Hazel	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Depth to rock, slope.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
40D, 40E Hazel	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Large stones, depth to rock, slope.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
41B Hiwassee	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
41C Hiwassee	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
42B3 Hiwassee	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
42C3 Hiwassee	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
42D3 Hiwassee	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
43B Klinesville	Severe: depth to rock.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Depth to rock	Droughty, depth to rock.
43C, 43D, 43E Klinesville	Severe: depth to rock, slope.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Slope, depth to rock.	Slope, droughty, depth to rock.
44C, 44D, 45C, 45D Lew	Severe: slope.	Severe: piping, hard to pack, large stones.	Severe: no water.	Deep to water	Large stones, slope.	Slope, large stones.	Large stones, slope.
46B Lignum	Moderate: depth to rock, slope.	Severe: hard to pack, wetness.	Severe: no water.	Slope, percs slowly.	Slope, percs slowly.	Erodes easily, wetness.	Wetness, erodes easily.
47C, 47D, 47E Louisburg	Severe: seepage.	Moderate: piping, erodes easily.	Severe: no water.	Deep to water	Slope, seepage.	Slope	Slope.
48D, 48E Louisburg	Severe: seepage.	Moderate: large stones, piping, erodes easily.	Severe: no water.	Deep to water	Slope	Large stones, slope.	Large stones, slope.
49B Manassas	Severe: seepage.	Moderate: piping, wetness.	Moderate: deep to water, slow refill, depth to rock.	Slope	Wetness, erodes easily, slope.	Erodes easily, wetness.	Erodes easily.
50D, 50E Manor	Severe: slope, seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
51B--------------- Manteo	Severe: depth to rock.	Severe: piping.	Severe: no water.	Deep to water	Large stones, depth to rock, slope.	Large stones, depth to rock.	Large stones, depth to rock.
51C, 51D, 51E----- Manteo	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water	Large stones, depth to rock, slope.	Large stones, depth to rock, slope.	Large stones, depth to rock, slope.
52D, 52E---------- Manteo	Severe: depth to rock, slope.	Severe: piping, large stones.	Severe: no water.	Deep to water	Large stones, depth to rock, slope.	Large stones, depth to rock, slope.	Large stones, depth to rock, slope.
53B--------------- Masada	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope-----------	Favorable-------	Favorable.
53C--------------- Masada	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope-----------	Slope-----------	Slope.
54B--------------- Mayodan	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope-----------	Favorable-------	Favorable.
54C--------------- Mayodan	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope-----------	Slope-----------	Slope.
55B--------------- McQueen	Moderate: slope.	Moderate: piping.	Severe: no water.	Deep to water	Percs slowly, slope, erodes easily.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
56B--------------- Meadowville	Severe: seepage.	Severe: piping.	Moderate: deep to water, slow refill, depth to rock.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
56C--------------- Meadowville	Severe: seepage, slope.	Severe: piping.	Moderate: deep to water, slow refill, depth to rock.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
57B--------------- Mount Lucas	Severe: seepage.	Severe: piping, wetness.	Severe: no water.	Percs slowly, frost action, slope.	Wetness, percs slowly, slope.	Wetness, percs slowly.	Wetness, percs slowly.
58B--------------- Myersville	Moderate: seepage, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
58C, 58D, 58E----- Myersville	Severe: slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
59C, 59D, 59E----- Myersville	Severe: slope.	Moderate: thin layer, piping, large stones.	Severe: no water.	Deep to water	Slope----------	Slope, large stones.	Large stones, slope.
60C*, 60D*, 60E*:							
Myersville-------	Severe: slope.	Moderate: thin layer, piping, large stones.	Severe: no water.	Deep to water	Slope----------	Slope, large stones.	Large stones, slope.
Catoctin---------	Severe: seepage, slope.	Moderate: seepage, piping, large stones.	Severe: no water.	Deep to water	Large stones, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
61D*, 61E*:							
Myersville-------	Severe: slope.	Moderate: thin layer, piping, large stones.	Severe: no water.	Deep to water	Slope----------	Slope, large stones.	Large stones, slope.
Rock outcrop.							
62B--------------- Nason	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Erodes easily, slope.	Erodes easily	Erodes easily.
62C, 62D---------- Nason	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Erodes easily, slope.	Slope, erodes easily.	Slope, erodes easily.
63B--------------- Orange	Moderate: depth to rock, slope.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness.	Wetness, erodes easily.
64B--------------- Orange	Moderate: depth to rock, slope.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, slope.	Wetness, percs slowly, slope.	Wetness, percs slowly.	Wetness, percs slowly.
65B--------------- Pacolet	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope----------	Favorable------	Favorable.
65C--------------- Pacolet	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope----------	Slope----------	Slope.
66C, 66D, 66E, 67D, 67E--------- Parker	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, slope.	Slope----------	Slope, droughty.
68B--------------- Penn	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Depth to rock, slope.	Depth to rock	Depth to rock.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
68C, 68D Penn	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Depth to rock, slope.	Slope, depth to rock.	Slope, depth to rock.
69*. Pits							
70C Porters	Severe: seepage.	Moderate: piping, large stones.	Severe: no water.	Deep to water	Slope	Slope, large stones.	Large stones, slope.
70D, 70E Porters	Severe: seepage, slope.	Moderate: piping, large stones.	Severe: no water.	Deep to water	Slope	Slope, large stones.	Large stones, slope.
71B Rabun	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
71C Rabun	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
71D, 71E Rabun	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
72B3 Rabun	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slow intake, slope.	Favorable	Favorable.
72C3 Rabun	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slow intake, slope.	Slope	Slope.
72D3, 72E3 Rabun	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slow intake, slope.	Slope	Slope.
73C Rabun	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
73D, 73E Rabun	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
74B Rapidan	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
74C, 74D, 75C3, 75D3 Rapidan	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
76 Riverview	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water	Flooding	Favorable	Favorable.
77*: Riverview	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water	Flooding	Favorable	Favorable.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
77*: Chewacla	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness, flooding.	Wetness	Wetness.
78 Rowland	Severe: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Flooding, frost action.	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
79B Starr	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, flooding.	Favorable	Favorable.
80B Tatum	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
80C Tatum	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
81B Thurmont	Moderate: seepage, slope.	Moderate: thin layer, piping.	Moderate: deep to water, slow refill.	Deep to water	Slope	Favorable	Favorable.
81C, 81D Thurmont	Severe: slope.	Moderate: thin layer, piping.	Moderate: deep to water, slow refill.	Deep to water	Slope	Slope	Slope.
82C, 82D Thurmont	Severe: slope.	Moderate: thin layer, large stones.	Moderate: deep to water, slow refill.	Deep to water	Slope	Slope, large stones.	Large stones, slope.
83 Toccoa	Severe: seepage.	Severe: piping.	Moderate: deep to water.	Flooding	Flooding	Favorable	Favorable.
84B Totier	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
84C, 85C3 Totier	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
86B Turbeville	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
86C Turbeville	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
87B Tusquitee	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
87C Tusquitee	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
87D Tusquitee	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
88. Udorthents							
89B Unison	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
89C Unison	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope	Slope.
90B Unison	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Large stones	Large stones.
90C, 90D Unison	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope	Slope, large stones.	Slope, large stones.
91*. Urban land							
92 Wahee	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, slope.	Wetness, percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.
93C, 93D, 93E Watt	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Droughty, depth to rock, slope.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
94B Wedowee	Slight	Moderate: piping.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
94C Wedowee	Slight	Moderate: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
95 Wehadkee	Moderate: seepage.	Severe: wetness.	Slight	Flooding	Wetness, flooding.	Wetness	Wetness.
96B Worsham	Moderate: slope.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, slope.	Wetness, percs slowly, slope.	Wetness, percs slowly.	Wetness, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1B--------------- Abell	0-12	Silt loam--------	SM, ML	A-2, A-4	0	90-100	75-100	50-95	25-85	<30	NP-7
	12-36	Clay, clay loam, silty clay loam.	CL, CH	A-6, A-7	0-5	90-100	75-95	70-95	65-90	30-60	15-30
	36-60	Loam, sandy loam, silt loam.	SM, ML	A-2, A-4	0-5	75-100	75-100	60-95	30-85	<30	NP-7
2B, 2C, 2D------- Albemarle	0-5	Fine sandy loam	SM, SC, ML, CL	A-4	0	95-100	90-100	65-95	40-75	14-30	NP-10
	5-30	Sandy clay loam, clay loam.	SC, CL	A-2, A-4, A-6	0	95-100	90-100	75-100	30-80	25-45	8-20
	30-38	Fine sandy loam, sandy loam, gravelly sandy loam.	SM, ML, CL-ML, CL	A-2, A-4	0	90-100	90-100	60-85	30-55	12-30	NP-10
	38	Weathered bedrock	---	---	---	---	---	---	---	---	---
3C, 3D, 3E------- Albemarle	0-5	Very stony fine sandy loam.	SM, SC, ML, CL	A-4	3-15	90-100	85-100	60-90	36-70	14-30	NP-10
	5-30	Sandy clay loam, clay loam.	SC, CL	A-2, A-4, A-6	0	95-100	90-100	75-100	30-80	25-45	8-20
	30-38	Fine sandy loam, sandy loam, gravelly sandy loam.	SM, ML, CL-ML, CL	A-2, A-4	0	90-100	90-100	60-85	30-55	12-30	NP-10
	38	Weathered bedrock	---	---	---	---	---	---	---	---	---
4B, 4C, 4D, 4E--- Ashe	0-10	Loam-------------	SM, SM-SC, ML, CL-ML	A-4	0-15	90-100	85-100	65-95	40-55	<25	NP-7
	10-19	Loam, sandy loam, fine sandy loam.	SM, SM-SC	A-4	5-30	85-100	80-95	60-95	35-49	<25	NP-7
	19-24	Sandy loam--------	SM	A-2, A-4	15-30	75-95	70-95	55-95	30-49	---	NP
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
5B--------------- Belvoir	0-12	Loam-------------	ML, SM, CL-ML, SM-SC	A-4	0	90-100	80-100	60-90	25-80	10-30	NP-10
	12-19	Sandy clay loam, clay loam, loam.	SC, CL, SM, ML	A-4, A-6	0	90-100	80-100	75-90	40-80	25-45	7-25
	19-28	Sandy loam, clay loam, loam.	ML, CL, SM, SC	A-2, A-4	0-5	90-100	80-100	60-90	30-70	20-40	NP-20
	28-45	Sandy clay loam, clay loam, loam.	SM, SC, CL, ML	A-2, A-4	0-10	90-100	80-100	55-80	30-70	15-35	NP-15
	45-72	Loam, sandy clay loam, clay.	SM, SC, CL, ML	A-2, A-4, A-6	0-10	90-100	80-100	50-90	40-80	15-50	NP-30
6---------------- Bermudian	0-4	Silt loam---------	ML	A-4	0	90-100	90-100	70-90	60-80	---	---
	4-45	Silt loam, gravelly silty clay loam, shaly sandy clay loam.	ML, SM, SC	A-4, A-6, A-7	0-10	65-90	60-80	55-75	40-60	30-45	8-15
	45-60	Stratified sand to gravelly sand.	ML, GM, SM, CL-ML	A-2, A-4, A-1	0-15	40-95	25-90	20-80	20-65	<20	NP-5
7B, 7C, 7D------- Braddock	0-8	Loam-------------	CL, SM, ML, SC	A-2, A-4	0-5	85-100	75-95	50-85	25-65	<30	NP-10
	8-60	Clay loam, gravelly sandy clay, clay.	MH, CH, CL, SC	A-7, A-2	0-15	70-95	70-90	45-90	20-80	42-60	15-33
8C3-------------- Braddock	0-4	Clay loam---------	ML, CL	A-6, A-7	0-10	70-95	70-90	65-90	50-85	35-50	15-25
	4-60	Clay loam, gravelly sandy clay, clay.	MH, CH, CL, SC	A-7, A-2	0-15	70-95	70-90	45-90	20-80	42-60	15-33

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
9B, 9C, 9D------- Braddock	0-8	Very stony loam	CL, SM, SC, ML	A-2, A-4	5-20	85-100	75-95	50-85	25-65	<30	NP-10
	8-60	Clay loam, gravelly sandy clay, cobbly clay.	MH, CH, CL, SC	A-7, A-2	0-30	60-95	50-90	40-90	30-80	42-60	15-30
10--------------- Buncombe	0-10	Loamy sand-------	SM, SP-SM	A-2, A-3	0	98-100	98-100	90-97	7-32	---	NP
	10-60	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	98-100	98-100	98-100	7-32	---	NP
11D*, 11E*:											
Cataska----------	0-5	Very stony loam	CL-ML, ML, GM, GM-GC	A-4	10-30	45-80	45-75	40-70	40-60	<28	NP-6
	5-20	Slaty silt loam, channery silt loam, very channery silt loam.	GM-GC, GM, GP-GM	A-2, A-1	10-25	15-50	10-45	10-40	10-35	<28	NP-7
	20-38	Weathered bedrock	---	---	---	---	---	---	---	---	---
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hartleton--------	0-7	Very stony loam	SM, ML	A-4	20-40	80-95	70-90	60-90	45-80	---	---
	7-32	Channery silt loam, very channery loam, channery silty clay loam.	GM, ML, SM	A-2, A-4	25-65	60-90	45-80	40-80	30-75	20-30	NP-7
	32-44	Very channery loam, very shaly silt loam.	SM, GM, ML	A-1, A-2, A-4	55-85	40-80	25-70	20-70	15-60	20-30	NP-7
	44	Weathered bedrock	---	---	---	---	---	---	---	---	---
12C, 12D, 12E---- Catoctin	0-5	Silt loam---------	ML, CL, CL-ML	A-4	0-5	80-95	80-90	60-85	50-80	<30	NP-8
	5-18	Channery silt loam, channery silty clay loam.	SM, SC, CL, GM	A-2, A-4, A-6	0-25	50-80	35-75	30-60	25-60	20-34	2-12
	18-28	Very channery silt loam, channery silt loam.	SM, GM, GC, SC	A-2, A-4, A-1, A-3	10-40	30-75	10-60	9-55	7-50	<28	NP-8
	28	Weathered bedrock	---	---	---	---	---	---	---	---	---
13C, 13D, 13E---- Catoctin	0-5	Very stony silt loam.	ML, CL, CL-ML	A-4	5-20	80-90	75-85	70-80	60-70	<30	NP-8
	5-18	Channery silt loam, channery silty clay loam, cobbly silt loam.	SM, SC, CL, GM	A-2, A-4, A-6	0-25	50-80	35-75	30-60	25-60	20-34	2-12
	18-28	Very channery silt loam, channery silt loam.	SM, SC, GC, GM	A-2, A-4, A-1, A-3	10-40	30-75	10-60	9-55	7-50	<28	NP-8
	28	Weathered bedrock	---	---	---	---	---	---	---	---	---
14B, 14C, 14D, 14E------------- Chester	0-7	Loam-------------	ML, CL	A-4, A-6, A-7	0-10	90-100	90-100	75-90	55-75	33-47	8-12
	7-41	Silty clay loam, silt loam, channery loam.	ML, CL, SM, SC	A-4, A-6, A-7	0-10	85-100	55-100	50-95	40-70	30-50	8-17
	41-60	Loam-------------	SM, SC, ML	A-2, A-4, A-7	0-10	80-100	70-100	70-95	30-65	<47	<16

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
15C, 15D, 15E Chester	0-7	Very stony loam	ML, CL	A-4, A-6, A-7	3-10	80-100	75-90	65-90	55-75	33-47	8-12
	7-41	Silty clay loam, silt loam, loam.	ML, CL	A-4, A-6, A-7	0-5	85-100	80-100	70-100	50-90	30-50	8-17
	41-60	Loam, sandy loam	SM, SC, ML	A-2, A-4, A-7	0-5	85-100	80-100	50-95	25-65	<45	<16
16 Chewacla	0-8	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	98-100	95-100	70-100	55-90	25-49	4-20
	8-60	Silt loam, silty clay loam, clay loam.	ML, CL	A-4, A-6, A-7	0	96-100	95-100	80-100	51-98	30-49	4-22
17 Craigsville	0-8	Loam	ML, SM, CL-ML, SC	A-2, A-4	0-25	80-95	75-95	45-90	30-85	<25	NP-10
	8-23	Gravelly sandy loam, cobbly loam, very gravelly sandy loam.	SM, GM, GC, SC	A-1, A-2, A-4	25-60	50-80	30-65	25-60	15-40	<25	NP-10
	23-60	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam.	GC, GM, GP-GM, GM-GC	A-1, A-2	35-75	35-55	30-50	20-45	10-25	<25	NP-8
18B Creedmoor	0-8	Loam	SM, SM-SC	A-4, A-2	0-3	98-100	95-100	70-90	30-49	<25	NP-7
	8-22	Sandy clay loam, clay loam.	CL	A-7	0-3	98-100	95-100	85-95	60-80	40-50	20-30
	22-70	Clay, silty clay, sandy clay.	CH	A-7	0-3	98-100	95-100	85-97	70-95	51-79	25-49
19B, 19C, 19D Cullen	0-8	Loam	CL	A-6, A-7, A-4	0	90-100	85-100	75-95	50-75	25-40	7-20
	8-60	Clay, clay loam	MH	A-7	0	90-100	85-100	75-100	65-95	50-70	15-35
	60-67	Clay loam, clay, loam.	CH, MH, CL, ML	A-7, A-6	0	90-100	85-100	75-100	50-85	35-60	11-30
20B3, 20C3, 20D3 Cullen	0-8	Clay loam	CL, ML	A-7	0	90-100	85-100	75-100	60-80	35-50	11-25
	8-60	Clay, clay loam	MH	A-7	0	90-100	85-100	75-100	65-95	50-70	15-35
	60-67	Clay loam, clay, loam.	CH, MH, CL, ML	A-7, A-6	0	90-100	85-100	75-100	50-85	35-60	11-30
21B, 21C, 21D Culpeper	0-8	Fine sandy loam	SM, ML, CL-ML, SM-SC	A-4	0-5	90-100	85-100	60-95	36-70	<30	NP-8
	8-30	Clay loam, clay	ML, CL, MH, CH	A-7	0-5	95-100	80-100	75-95	55-90	40-65	15-35
	30-37	Sandy clay loam, clay loam.	ML, SM	A-2, A-4, A-6, A-7	0-5	90-100	80-100	70-95	30-75	30-50	5-20
	37-45	Fine sandy loam, gravelly fine sandy loam.	SM, SM-SC, SC	A-4, A-2, A-1	0-15	75-100	50-100	30-75	20-50	10-30	NP-10
22C3 Culpeper	0-8	Clay loam	ML, SM	A-2, A-4, A-6, A-7	0-5	90-100	80-100	70-95	30-75	30-50	5-20
	8-30	Clay loam, clay	ML, CL, MH, CH	A-7	0-5	95-100	80-100	75-95	55-90	40-65	15-35
	30-37	Sandy clay loam, clay loam.	ML, SM	A-2, A-4, A-6, A-7	0-5	90-100	80-100	70-95	30-75	30-50	5-20
	37-45	Fine sandy loam, gravelly fine sandy loam.	SM, SM-SC, SC	A-4, A-2, A-1	0-15	75-100	50-100	30-75	20-50	10-30	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
23B, 23C Davidson	0-4	Clay loam	CL, SC, CL-ML, SM-SC	A-6, A-4	0	94-100	84-100	75-95	40-70	25-40	5-18
	4-10	Clay loam	CL	A-6	0	96-100	90-100	75-95	50-75	25-40	11-25
	10-63	Clay	CL, CH, ML, MH	A-7, A-6	0	96-100	95-100	85-100	65-85	35-65	15-35
	63-88	Clay, clay loam, sandy clay loam.	CL, ML	A-4, A-6, A-7	0	95-100	90-100	75-100	50-80	20-50	7-25
24B Dogue	0-10	Silt loam	ML, CL, SM, SC	A-4	0	95-100	75-100	60-100	40-85	<30	NP-10
	10-70	Clay loam, clay, sandy clay loam.	CL, CH, SC	A-6, A-7	0	95-100	75-100	65-100	40-90	35-60	16-40
25B, 25C Dyke	0-8	Silt loam	ML, CL	A-6, A-7	0-5	90-100	75-100	70-100	60-90	20-35	10-20
	8-64	Clay, silty clay, silty clay loam.	MH, CH, ML, CL	A-7, A-6	0-15	85-100	75-100	65-90	55-80	35-60	10-30
26B3, 26C3, 26D3 Dyke	0-8	Clay loam	ML, CL	A-6, A-7	0-5	90-100	75-100	70-100	70-90	30-50	15-30
	8-64	Clay, silty clay, silty clay loam.	MH, CH, ML, CL	A-7, A-6	0-15	85-100	75-100	65-90	55-80	35-60	10-30
27B, 27C, 27D Elioak	0-8	Silt loam	ML, CL, SM	A-4, A-6, A-7	0-10	90-100	80-100	55-100	35-85	30-45	5-20
	8-39	Silty clay loam, clay loam, silty clay.	CL, CH, MH, ML	A-6, A-7	0-5	90-100	90-100	70-100	50-90	35-58	11-26
	39-72	Silt loam, loam, gravelly fine sandy loam.	ML, SM, GM	A-4, A-5, A-2	0-5	65-100	65-100	60-100	30-85	35-50	NP-10
28C3, 28D3 Elioak	0-8	Clay loam	ML, CL, SM	A-4, A-6, A-7	0-10	90-100	80-100	55-100	35-85	30-45	5-20
	8-39	Silty clay loam, clay loam, silty clay.	CL, CH, MH, ML	A-6, A-7	0-5	90-100	90-100	70-100	50-90	35-58	11-26
	39-72	Silt loam, loam, gravelly fine sandy loam.	ML, SM, GM	A-4, A-5, A-2	0-5	65-100	65-100	60-100	30-85	35-50	NP-10
29B, 29C, 29D, 29E Fauquier	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	80-100	75-100	65-95	50-95	22-34	4-14
	6-34	Silty clay loam, clay, silty clay.	CL, CH, MH, SC	A-6, A-7	0-5	80-100	75-100	50-95	45-95	36-70	16-36
	34-60	Weathered bedrock	---	---	---	---	---	---	---	---	---
30C3, 30D3 Fauquier	0-6	Silty clay loam	CL, CL-ML	A-4, A-6	0	80-100	75-100	65-95	50-95	22-34	4-14
	6-34	Silty clay loam, clay, silty clay.	CL, CH, MH, SC	A-6, A-7	0-5	80-100	75-100	50-95	45-95	36-70	16-36
	34-60	Weathered bedrock	---	---	---	---	---	---	---	---	---
31C, 31D Fauquier	0-6	Very stony silt loam.	SM-SC, CL, CL-ML, GC	A-4, A-6	5-25	60-80	55-70	50-60	45-60	22-34	4-14
	6-34	Silty clay loam, clay, gravelly silty clay.	CL, CH, MH, SC	A-6, A-7	0-5	80-100	70-100	50-95	45-95	36-70	16-36
	34-60	Weathered bedrock	---	---	---	---	---	---	---	---	---
32B, 32C Fluvanna	0-8	Silt loam	SM, SC, ML, CL	A-2, A-4, A-6	0	85-100	80-100	55-100	30-90	16-35	NP-16
	8-48	Clay, silty clay, silty clay loam.	MH, CH	A-7	0	95-100	95-100	85-100	70-95	50-80	25-50
	48-60	Clay loam, silty clay loam, gravelly clay loam.	CL, GC, SC	A-6, A-7, A-2	0-5	50-100	45-100	40-100	30-95	30-50	11-25

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
33C Fluvanna	0-8	Very stony silt loam.	SM, SC, ML, CL	A-2, A-4, A-6	5-25	85-100	80-100	55-100	30-90	<30	NP-16
	8-48	Clay, silty clay, silty clay loam.	MH, CH	A-7	0-5	95-100	95-100	85-100	70-95	50-80	25-50
	48-60	Clay loam, silty clay loam, gravelly clay loam.	CL, GC, SC	A-6, A-7, A-2	0-5	50-100	45-100	40-100	30-95	35-50	11-25
34B, 34C, 34D, 34E Glenelg	0-8	Loam	ML	A-4, A-6	0	90-100	85-100	75-95	50-80	32-40	7-12
	8-28	Channery silt loam, silty clay loam, loam.	GM, ML, SM	A-4, A-6, A-7	0-10	60-100	55-90	50-90	35-85	34-46	9-15
	28-80	Loam, sandy loam, channery loam.	GM, SM, ML	A-1, A-2, A-4	0-50	60-100	15-95	15-90	10-70	<40	NP-6
35C*: Hartleton	0-7	Very stony loam	SM, ML	A-4	20-40	80-95	70-90	60-90	45-80	---	---
	7-32	Channery silt loam, very channery loam, channery silty clay loam.	GM, ML, SM	A-2, A-4	25-65	60-90	45-80	40-80	30-75	20-30	NP-7
	32-44	Very channery loam, very shaly silt loam.	SM, GM, ML	A-1, A-2, A-4	55-85	40-80	25-70	20-70	15-60	20-30	NP-7
	44	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cataska	0-5	Very stony loam	CL-ML, ML, GM, GM-GC	A-4	10-30	45-80	45-75	40-70	40-60	<28	NP-6
	5-20	Slaty silt loam, channery silt loam, very channery silt loam.	GM-GC, GM, GP-GM	A-2, A-1	10-25	15-50	10-45	10-40	10-35	<28	NP-7
	20-38	Weathered bedrock	---	---	---	---	---	---	---	---	---
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
36B, 36C, 36D, 36E Hayesville	0-7	Loam	SM, SC, ML, CL	A-4	0	90-100	85-95	70-95	35-60	<25	NP-10
	7-58	Clay loam, clay	ML, MH, CL, CH	A-6, A-7	0	90-100	85-100	70-100	55-75	36-55	11-25
	58-83	Sandy clay loam, clay loam.	SM, ML, MH, CL	A-6, A-7	0-5	90-100	90-100	85-95	45-65	36-55	11-25
37B3, 37C3, 37D3, 37E3 Hayesville	0-7	Clay loam	SM, SC, ML, CL	A-4	0	90-100	85-95	70-95	35-60	<25	NP-10
	7-58	Clay loam, clay	ML, MH, CL, CH	A-6, A-7	0	90-100	85-100	70-100	55-75	36-55	11-25
	58-83	Sandy clay loam, clay loam.	SM, ML, MH, CL	A-6, A-7	0-5	90-100	90-100	85-95	45-65	36-55	11-25
38C, 38D, 38E Hayesville	0-7	Very stony loam	SM, SC, ML, CL	A-4, A-6	5-25	90-100	85-100	60-95	36-75	<35	NP-15
	7-58	Clay loam, clay	ML, MH, CL, CH	A-6, A-7	0-5	90-100	85-100	75-100	60-95	35-70	11-30
	58-83	Sandy clay loam, clay loam.	SM, ML, MH, CL	A-2, A-6, A-7	0-5	90-100	85-100	70-100	30-80	30-55	11-25

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
39C, 39D, 39E---- Hazel	0-10	Loam--------------	ML, CL-ML	A-4	0-10	80-100	75-100	65-95	50-80	20-32	2-8
	10-20	Channery fine sandy loam, channery sandy loam, silt loam.	SM, SC, ML, GM	A-2, A-4, A-1	0-30	60-95	50-95	30-95	15-85	20-32	NP-8
	20-30	Channery fine sandy loam, channery loam, channery silt loam.	SM, SM-SC, GM, ML	A-2, A-4, A-1	0-30	60-80	45-70	30-70	20-60	20-32	NP-8
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
40D, 40E---------- Hazel	0-10	Very stony loam	SM, SM-SC, SC	A-2, A-4	5-15	65-80	45-70	40-55	30-50	15-30	2-8
	10-20	Channery fine sandy loam, channery sandy loam, silt loam.	SM, SC, ML, GM	A-2, A-4, A-1	5-30	60-95	50-95	30-95	15-85	20-32	NP-8
	20-30	Channery fine sandy loam, channery loam, channery silt loam.	SM, SM-SC, GM, ML	A-2, A-4, A-1	0-30	60-80	45-70	30-70	20-60	20-32	NP-8
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
41B, 41C---------- Hiwassee	0-8	Loam--------------	CL, ML, CL-ML	A-7, A-6, A-4	0-2	95-100	95-100	90-100	50-85	25-49	5-23
	8-64	Clay, silty clay, clay loam.	CL, ML, MH	A-7, A-7, A-6	0-2	95-100	95-100	80-100	51-95	40-80	12-36
42B3, 42C3, 42D3- Hiwassee	0-8	Clay loam---------	CL, ML, CL-ML	A-7, A-6, A-4	0-2	95-100	95-100	90-100	50-85	25-49	5-23
	8-64	Clay, silty clay, clay loam.	CL, ML, MH	A-7, A-7, A-6	0-2	95-100	95-100	80-100	51-95	40-80	12-36
43B, 43C, 43D, 43E-------------- Klinesville	0-4	Channery silt loam	GM, SM	A-2, A-4	0-10	55-85	45-60	35-50	25-40	---	---
	4-10	Channery silt loam, very shaly silt loam.	GM, GP, SM, SP	A-2, A-1, A-4	0-10	25-75	15-55	10-50	4-40	20-35	NP-9
	10-14	Channery silt loam, very shaly silt loam.	GM, GP, SM, SP	A-2, A-1	0-20	15-60	10-50	10-40	4-30	20-35	NP-7
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
44C, 44D---------- Lew	0-7	Very stony silt loam.	ML, GM, CL, GC	A-2, A-4	5-70	35-85	30-75	28-70	25-60	<28	NP-8
	7-60	Channery clay loam, very channery silty clay loam.	ML, MH, GM, SM	A-2, A-4, A-6, A-7	15-70	40-90	30-75	28-75	25-70	32-56	8-20
45C, 45D---------- Lew	0-7	Extremely stony silt loam.	ML, GM, CL, GC	A-2, A-4	5-70	35-85	30-75	28-70	25-60	<28	NP-8
	7-60	Channery clay loam, very channery silty clay loam.	ML, MH, GM, SM	A-2, A-4, A-6, A-7	15-70	40-90	30-75	28-75	25-70	32-56	8-20

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
46B-------------- Lignum	0-9	Silt loam--------	CL	A-4, A-6	0	95-100	95-100	80-100	55-90	20-35	9-19
	9-38	Silty clay loam, silty clay,	CH, CL	A-7	0-5	80-100	75-95	70-85	55-85	45-65	22-36
	38-58	Sandy clay loam, gravelly sandy clay loam, gravelly silty clay loam.	SC, CL, ML, SM	A-4, A-6, A-7, A-2	0-15	70-85	35-80	30-80	20-75	30-50	8-18
	58	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
47C, 47D, 47E---- Louisburg	0-5	Sandy loam--------	SM, SM-SC	A-2	0-15	80-100	75-95	50-80	25-35	<30	NP-6
	5-60	Sandy loam--------	SM, SM-SC	A-2, A-4	0-15	85-100	75-98	53-78	25-40	<40	NP-7
	60	Weathered bedrock	---	---	---	---	---	---	---	---	---
48D, 48E--------- Louisburg	0-5	Very stony sandy loam	SM	A-2, A-1	25-38	83-95	70-83	43-65	14-23	---	NP
	5-60	Stony sandy loam	SM, SM-SC	A-2, A-4	25-38	83-95	75-83	50-70	25-39	<40	NP-7
	60	Weathered bedrock	---	---	---	---	---	---	---	---	---
49B-------------- Manassas	0-18	Silt loam--------	ML, CL, CL-ML	A-4	0	90-100	85-100	75-100	55-90	20-34	2-15
	18-64	Silt loam, silty clay loam, clay loam.	CL, ML	A-6, A-4	0	90-100	85-100	80-100	60-95	30-45	7-20
50D, 50E--------- Manor	0-8	Loam-------------	ML	A-4, A-6	0	95-100	80-100	70-100	50-90	32-40	6-12
	8-18	Loam, silt loam, channery loam.	SM, ML, GM	A-4, A-6	0-10	70-95	60-95	50-95	35-85	26-40	4-12
	18-62	Loam, sandy loam, channery sandy loam.	SM, ML, CL-ML, SM-SC	A-1, A-2, A-4, A-6	0-5	70-100	60-100	35-95	20-75	20-40	2-12
51B, 51C, 51D, 51E------------- Manteo	0-6	Channery silt loam.	GM, ML, CL, GC	A-4	10-25	60-100	55-95	50-90	36-85	18-32	2-15
	6-18	Very channery silt loam, channery silt loam, channery clay loam.	GM, GC, ML, CL	A-1, A-2, A-4, A-6	15-40	40-90	30-90	30-85	20-80	18-38	2-20
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
52D, 52E--------- Manteo	0-6	Very channery silt loam.	GM, ML, CL, GC	A-1, A-2, A-4, A-6	25-40	45-90	35-90	30-85	20-80	18-32	2-15
	6-18	Very channery silt loam, channery silt loam, channery clay loam.	GM, GC, ML, CL	A-1, A-2, A-4, A-6	15-40	40-90	30-90	30-85	20-80	18-38	2-20
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
53B, 53C--------- Masada	0-7	Loam-------------	ML, SM, SC, CL	A-4	0-5	90-100	75-100	60-85	35-70	<30	NP-8
	7-33	Clay loam, clay, gravelly clay.	MH, ML, CH, CL	A-7	0-10	80-100	70-100	65-90	50-80	45-65	20-35
	33-62	Clay loam, gravelly clay loam.	CL	A-6, A-7	0-10	80-100	70-100	65-90	50-80	30-45	15-25
54B, 54C--------- Mayodan	0-10	Loam-------------	SM, ML, SM-SC	A-2, A-4	0-5	92-100	90-100	49-75	30-65	<36	NP-5
	10-53	Clay, clay loam, sandy clay.	MH, CH	A-7	0-2	95-100	95-100	95-100	50-90	60-80	28-40
	53-60	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
55B-------------- McQueen	0-7	Loam-------------	ML, CL-ML	A-4	0	95-100	95-100	85-100	70-95	<40	NP-10
	7-42	Silty clay, clay loam, clay.	ML, CL	A-7, A-6	0	95-100	95-100	90-100	85-98	30-50	10-25
	42-52	Clay loam, silty clay loam, sandy clay loam.	ML, CL	A-6, A-4, A-7	0	95-100	95-100	90-100	60-90	28-43	8-20
	52-64	Sandy clay loam, clay loam, sandy loam.	CL, SM-SC, SC, ML	A-2, A-4, A-6	0	95-100	95-100	50-100	15-65	<35	NP-20
56B, 56C--------- Meadowville	0-14	Loam-------------	ML, CL, CL-ML	A-4	0	90-100	75-100	65-95	50-85	18-32	2-10
	14-46	Loam, silty clay loam, clay loam.	CL, ML	A-4, A-6, A-7	0	90-100	75-100	65-95	50-85	28-50	8-20
	46-73	Sandy clay loam, sandy clay.	SC, CL, MH, CH	A-2, A-6, A-7	0-5	75-95	75-95	60-85	25-55	30-55	10-24
57B-------------- Mount Lucas	0-10	Silt loam--------	ML	A-4	0-5	95-100	80-100	75-95	60-90	---	---
	10-48	Silt loam, gravelly silty clay loam, sandy clay loam.	ML, GM, SM	A-4, A-2, A-7, A-5	0-10	70-95	55-95	45-95	30-90	30-49	3-15
	48-64	Gravelly clay loam, gravelly loam, gravelly loamy sand.	SP-SM, SM, ML, GM	A-2, A-4, A-6, A-1	0-10	45-80	30-70	15-70	10-55	25-40	NP-11
58B, 58C, 58D, 58E------------- Myersville	0-7	Silt loam--------	ML, CL, CL-ML	A-4	0-3	95-100	95-100	80-95	55-85	18-28	2-10
	7-28	Silty clay loam, clay loam, channery clay loam.	CL	A-6	0-3	70-95	60-95	55-90	50-85	28-38	12-20
	28-44	Silt loam, channery silt loam, very channery clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	0-3	25-90	20-85	12-75	8-60	<28	NP-10
	44-65	Weathered bedrock	---	---	---	---	---	---	---	---	---
59C, 59D, 59E---- Myersville	0-7	Very stony silt loam.	ML, CL, CL-ML	A-4	5-25	95-100	90-100	80-95	55-85	18-28	2-10
	7-28	Silty clay loam, clay loam, channery clay loam.	CL	A-6	3-20	75-95	70-95	55-90	50-85	28-38	12-20
	28-44	Silty clay loam, channery silt loam, very channery clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	3-20	30-85	20-75	12-70	8-65	<28	NP-10
	44-65	Weathered bedrock	---	---	---	---	---	---	---	---	---
60C*, 60D*, 60E*: Myersville------	0-7	Very stony silt loam.	ML, CL, CL-ML	A-4	5-25	95-100	90-100	80-95	55-85	18-28	2-10
	7-28	Silty clay loam, clay loam, channery clay loam.	CL	A-6	3-20	75-95	70-95	55-90	50-85	28-38	12-20
	28-44	Silty clay loam, channery silt loam, very channery clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	3-20	30-85	20-75	12-70	8-65	<28	NP-10
	44-65	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
60C*, 60D*, 60E*:											
Catoctin----------	0-5	Very stony silt loam.	ML, CL, CL-ML	A-4	5-20	80-90	75-85	70-80	60-70	<30	NP-8
	5-18	Channery silt loam, channery silty clay loam, cobbly silt loam.	SM, SC, CL, GM	A-2, A-4, A-6	0-25	50-80	35-75	30-60	25-60	20-34	2-12
	18-28	Very channery silt loam, channery silt loam.	SM, SC, GC, GM	A-2, A-4, A-1, A-3	10-40	30-75	10-60	9-55	7-50	<28	NP-8
	28	Weathered bedrock	---	---	---	---	---	---	---	---	---
61D*, 61E*:											
Myersville-------	0-7	Very stony silt loam.	ML, CL, CL-ML	A-4	5-25	95-100	90-100	80-95	55-85	18-28	2-10
	7-28	Silty clay loam, clay loam, channery clay loam.	CL	A-6	3-20	75-95	70-95	55-90	50-85	28-38	12-20
	28-44	Silty clay loam, channery silt loam, very channery clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	3-20	30-85	20-75	12-70	8-65	<28	NP-10
	44-65	Weathered bedrock	---	---	---	---	---	---	---	---	---
Rock outcrop.											
62B, 62C, 62D----- Nason	0-8	Silt loam---------	ML, CL-ML, SM	A-4	0-5	80-100	75-100	55-95	35-85	<38	NP-10
	8-39	Silty clay loam, silty clay, clay.	CL, CH	A-7	0-5	80-100	75-100	70-95	65-90	40-60	15-30
	39-50	Channery silt loam, silt loam.	CL-ML, SC, GM-GC	A-2, A-4, A-6	0-5	50-80	45-75	40-75	30-70	20-35	4-12
63B--------------- Orange	0-9	Silt loam---------	SM, ML, CL-ML, SM-SC	A-4	0	90-95	85-95	75-95	45-85	<24	NP-6
	9-33	Clay, silty clay, silty clay loam.	CH	A-7	0	90-95	85-95	75-95	65-90	70-99	45-70
	33-60	Silt loam, very channery silt loam, sandy clay loam.	SC, CL	A-6, A-7	0-40	70-100	50-100	45-100	40-90	25-45	10-25
64B--------------- Orange	0-9	Very stony silt loam.	SM, ML, CL-ML, SM-SC	A-4	5-25	90-95	85-95	75-95	45-85	<24	NP-6
	9-33	Clay, silty clay, silty clay loam.	CH	A-7	0-15	90-95	85-95	75-95	65-90	70-99	45-70
	33-60	Silt loam, very channery silt loam, sandy clay loam.	CL, SC	A-6, A-7	0-15	70-100	50-100	45-100	40-90	25-45	10-25
65B, 65C---------- Pacolet	0-6	Sandy loam--------	SM, SM-SC	A-2, A-1	0-2	85-100	80-100	42-80	16-35	<28	NP-7
	6-32	Sandy clay, clay loam, clay.	ML, MH, CL	A-6, A-7	0-1	80-100	80-100	60-95	51-75	38-65	11-30
	32-60	Clay loam, sandy clay loam, sandy loam.	CL, CL-ML, SM-SC, SC	A-2, A-4, A-6	0-2	80-100	70-100	60-80	30-60	20-35	5-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
66C, 66D, 66E---- Parker	0-14	Very stony sandy loam.	GM, GP-GM	A-1, A-2	5-10	40-60	25-50	15-45	10-30	10-20	2-7
	14-38	Very gravelly loam, cobbly sandy loam, very gravelly sandy loam.	GM, GP-GM, GC	A-1, A-2	5-10	40-60	30-55	20-50	10-35	15-25	2-10
	38-67	Very gravelly sandy loam, very gravelly loam.	GM, GP, GC	A-1, A-2	5-15	20-40	5-30	3-25	2-20	15-25	2-10
67D, 67E--------- Parker	0-14	Extremely stony sandy loam.	GM, GP-GM	A-1, A-2	10-15	40-60	25-50	15-45	10-30	10-20	2-7
	14-38	Very gravelly loam, cobbly sandy loam, very gravelly sandy loam.	GM, GP-GM, GC	A-1, A-2	5-10	40-60	30-55	20-50	10-35	15-25	2-10
	38-67	Very gravelly sandy loam, very gravelly loam.	GM, GP, GC	A-1, A-2	5-15	20-40	5-30	3-25	2-20	15-25	2-10
68B, 68C, 68D---- Penn	0-7	Silt loam--------	ML	A-4	0-5	95-100	90-100	85-95	60-85	---	---
	7-21	Shaly silt loam, shaly loam, shaly silty clay loam.	ML, SM, GM	A-4, A-2	0-10	55-100	50-100	45-95	30-75	20-37	1-10
	21-29	Very shaly silt loam, very shaly loam.	ML, CL, SM, GM	A-4, A-2, A-1	0-15	35-100	20-100	15-95	15-70	20-35	3-10
	29	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
69*. Pits											
70C, 70D, 70E---- Porters	0-8	Very stony loam	ML, SM, SM-SC, CL-ML	A-2, A-4	5-35	75-95	70-85	50-70	30-55	<30	NP-7
	8-26	Loam, clay loam	ML, SM	A-4, A-7, A-5	5-15	80-95	70-85	60-70	36-55	35-50	4-15
	26-32	Loam, sandy loam	SM, SM-SC	A-2, A-4	5-25	75-99	60-99	50-90	30-50	<25	NP-7
	32-59	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
71B, 71C, 71D, 71E------------- Rabun	0-6	Clay loam--------	ML, CL, SM, SC	A-6, A-7, A-4	0-2	90-100	75-100	70-100	45-70	25-45	6-20
	6-48	Clay loam, clay, silty clay.	ML, CL, MH, CH	A-7	0-5	90-100	80-100	65-96	55-90	41-61	12-30
	48-63	Clay, clay loam, silty clay loam.	ML, CL	A-7, A-6	0-13	90-100	70-100	65-95	51-85	36-50	11-23
72B3, 72C3, 72D3, 72E3------------ Rabun	0-4	Clay--------------	ML, CL, MH, CH	A-7	0-5	90-100	70-100	65-96	51-90	41-61	12-30
	4-48	Clay, silty clay, clay loam.	MH, CH, ML, CL	A-7	0-5	90-100	80-100	65-96	55-90	41-61	12-30
	48-63	Clay, clay loam, silty clay loam.	ML, CL	A-7, A-6	0-13	90-100	70-100	65-95	51-85	36-50	12-23
73C, 73D, 73E---- Rabun	0-6	Very stony clay loam	SM-SC, SM, SC	A-4, A-6	15-25	75-95	55-85	50-80	35-50	20-35	4-12
	6-48	Clay loam, clay	ML, CL, MH, CH	A-7	0-5	90-100	80-100	65-96	55-86	41-61	12-30
	48-63	Clay, cobbly loam, gravelly clay loam.	ML, CL, MH, CH	A-6, A-7	5-20	80-95	70-90	55-85	51-80	35-60	11-28

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
74B, 74C, 74D---- Rapidan	0-6	Silt loam--------	ML, CL-ML, CL	A-4	0-5	85-100	80-100	70-95	55-90	20-35	NP-10
	6-54	Silty clay loam, clay, shaly silty clay loam.	CL, CH, MH, SC	A-6, A-7	0-5	75-100	50-100	50-95	45-90	40-70	20-40
	54-70	Very shaly silty clay loam, very shaly clay loam, loam.	GM, GC	A-2, A-4, A-6	35-50	40-60	35-50	35-50	30-45	25-45	7-20
75C3, 75D3------- Rapidan	0-6	Silty clay loam	CL, ML	A-4, A-6	0-5	85-100	80-100	75-95	65-95	30-45	10-20
	6-54	Silty clay loam, clay, shaly silty clay loam.	CL, CH, MH, SC	A-6, A-7	0-5	75-100	50-100	50-95	45-90	40-70	20-40
	54-70	Very shaly silty clay loam, very shaly clay loam, loam.	GM, GC	A-2, A-4, A-6	35-50	40-60	35-50	35-50	30-45	25-45	7-20
76--------------- Riverview	0-12	Loam-------------	CL, CL-ML, ML	A-4	0	100	100	90-100	60-80	15-30	5-10
	12-35	Sandy clay loam, silty clay loam, loam.	CL, ML, CL-ML	A-4, A-6	0	100	100	90-100	60-95	20-40	4-20
	35-60	Loamy fine sand, sandy loam, sand.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	100	50-95	15-45	<30	NP-7
77*: Riverview--------	0-12	Loam-------------	CL, CL-ML, ML	A-4	0	100	100	90-100	60-80	15-30	5-10
	12-35	Sandy clay loam, silty clay loam, loam.	CL, ML, CL-ML	A-4, A-6	0	100	100	90-100	60-95	20-40	4-20
	35-60	Loamy fine sand, sandy loam, sand.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	100	50-95	15-45	<30	NP-7
Chewacla--------	0-8	Silt loam--------	ML, CL, CL-ML	A-4, A-6, A-7	0	98-100	95-100	70-100	55-90	25-49	4-20
	8-60	Silt loam, silty clay loam, clay loam.	ML, CL	A-4, A-6, A-7	0	96-100	95-100	80-100	51-98	30-49	4-22
78--------------- Rowland	0-11	Silt loam--------	ML, SM	A-4	0-5	95-100	95-100	75-100	35-95	---	---
	11-38	Silt loam, loam, sandy clay loam.	ML, SM	A-4, A-7, A-6	0-5	95-100	95-100	75-100	35-95	24-45	NP-15
	38-60	Sandy clay, silt loam, gravelly silty clay loam.	ML, SM	A-4, A-6, A-7	0-10	90-100	70-100	65-100	35-95	25-50	3-17
79B-------------- Starr	0-18	Silt loam--------	ML, CL-ML, CL	A-4, A-6, A-7	0	90-100	90-100	70-95	51-85	20-50	3-23
	18-68	Clay loam, sandy clay loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6, A-7	0	95-100	95-100	70-95	51-80	20-50	3-23
80B, 80C--------- Tatum	0-6	Silt loam--------	ML, CL, SM	A-4	0	85-100	80-100	65-100	40-90	20-34	NP-10
	6-42	Silty clay loam, silty clay, clay.	MH	A-7	0	75-100	70-100	60-100	55-95	50-80	10-36
	42-51	Silt loam, loam, silty clay loam.	CL	A-6, A-7	0	75-100	70-100	60-90	60-85	30-45	12-20
	51	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
81B, 81C, 81D---- Thurmont	0-10	Loam----------------	SM, ML, CL, SM-SC	A-2, A-4	0-3	80-100	75-100	55-70	25-65	<30	NP-10
	10-46	Clay loam, loam, gravelly sandy clay loam.	SC, CL	A-2, A-6, A-7	0-5	80-100	70-90	65-80	30-60	30-45	12-20
	46-56	Sandy loam, sandy clay loam, gravelly sandy clay loam.	SC	A-2, A-6, A-7	0-5	75-90	70-90	45-75	30-45	30-45	12-25
	56-68	Cobbly sandy loam, gravelly sandy clay loam.	SM, SM-SC	A-1, A-2	0-30	70-85	50-75	30-50	15-35	<20	NP-7
82C, 82D---------- Thurmont	0-10	Very stony loam	SM, ML, CL, SM-SC	A-1, A-2, A-4	5-25	75-95	60-80	40-70	20-55	<30	NP-10
	10-46	Clay loam, loam, gravelly sandy clay loam.	SC, CL	A-2, A-6, A-7	2-20	75-90	55-75	45-70	20-55	25-45	7-25
	46-56	Sandy loam, sandy clay loam, gravelly sandy clay loam.	SC, CL	A-2, A-6, A-7	2-20	75-90	55-75	35-60	20-40	25-40	7-20
	56-68	Cobbly sandy loam, gravelly sandy clay loam.	SM, SM-SC	A-1, A-2	15-40	70-85	45-75	30-50	15-35	<20	NP-7
83---------------- Toccoa	0-9	Fine sandy loam	SM, ML	A-2, A-4	0	98-100	95-100	85-100	20-60	<30	NP-4
	9-66	Sandy loam, loam	SM, ML	A-2, A-4	0	95-100	90-100	60-100	30-55	<30	NP-4
84B, 84C---------- Totier	0-8	Silt loam----------	ML, CL	A-4	0	90-100	75-100	70-95	60-90	20-35	NP-15
	8-40	Silty clay, clay, shaly silty clay loam.	ML, MH, CL, CH	A-6, A-7	0	95-100	60-100	60-100	55-95	45-70	25-45
	40-49	Shaly silty clay loam, very shaly silt loam, shaly silty clay.	SC, SM	A-2, A-4, A-6	0-5	60-95	25-70	25-65	20-60	30-45	10-25
	49-63	Weathered bedrock	---	---	---	---	---	---	---	---	---
85C3-------------- Totier	0-8	Silty clay loam	ML, CL	A-6, A-7	0	90-100	75-100	70-100	65-95	30-45	10-25
	8-40	Silty clay, clay, shaly silty clay loam.	ML, MH, CL, CH	A-6, A-7	0	95-100	60-100	60-100	55-95	45-70	25-45
	40-49	Shaly silty clay loam, very shaly silt loam, shaly silty clay.	SC, SM	A-2, A-4, A-6	0-5	60-95	25-70	25-65	20-60	30-45	10-25
	49-63	Weathered bedrock	---	---	---	---	---	---	---	---	---
86B, 86C---------- Turbeville	0-12	Loam----------------	ML, SM, CL-ML	A-2, A-4	0-20	80-100	75-100	50-90	30-75	<28	NP-7
	12-75	Clay, clay loam, sandy clay.	CL, MH, CH	A-7	0-20	70-100	65-100	60-100	55-95	45-65	16-35
87B, 87C, 87D---- Tusquitee	0-9	Stony loam--------	ML, MH, SM	A-5, A-7	2-10	90-100	80-100	65-95	40-75	40-55	5-15
	9-45	Clay loam, sandy clay loam, loam.	ML, CL-ML, SM-SC, SM	A-4, A-6	2-15	90-100	75-100	65-95	36-75	25-40	4-12
	45-63	Gravelly sandy loam, gravelly fine sandy loam.	GM, SM-SC, SM, GM-GC	A-4, A-1, A-2	15-50	45-90	40-85	30-75	13-50	<25	NP-7
88. Udorthents											

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
89B, 89C--------- Unison	0-6	Silt loam--------	CL, ML CL-ML, SM	A-4, A-6	0-25	75-100	75-100	60-95	50-90	20-38	2-15
	6-58	Clay loam, clay gravelly silty clay.	CL, CH	A-6, A-7	0-25	75-100	65-100	60-100	55-95	35-65	15-35
	58-60	Cobbly clay loam, silty clay loam, very gravelly loam.	CL-ML, CL ML, GM-GC	A-1, A-2, A-6, A-7	10-45	30-90	25-85	20-85	15-80	20-50	5-20
90B, 90C, 90D---- Unison	0-6	Very stony silt loam.	CL, ML, CL-ML, SM	A-4, A-6	5-40	75-100	75-100	60-95	50-90	20-38	2-15
	6-58	Clay loam, clay, gravelly silty clay.	CL, CH	A-6, A-7	0-25	75-100	65-100	60-100	55-95	35-65	
	58-60	Cobbly clay loam, silty clay loam, very gravelly loam.	CL-ML, CL, ML, GM-GC	A-1, A-2, A-6, A-7	10-45	30-90	25-85	20-85	15-80	20-50	5-20
91*. Urban land											
92--------------- Wahee	0-9	Silt loam--------	ML, CL-ML	A-4	0	100	100	90-98	51-75	20-35	2-10
	9-60	Clay, clay loam, silty clay.	CL, CH	A-6, A-7	0	100	100	85-100	51-90	38-70	18-42
93C, 93D, 93E---- Watt	0-10	Channery silt loam.	CL-ML, ML, SM	A-4, A-6	10-20	80-90	50-80	45-75	40-60	15-35	NP-15
	10-18	Channery silt loam, channery silty clay loam.	SM-SC, CL, CL-ML	A-4, A-6	10-20	80-90	50-80	45-80	40-70	20-40	5-20
	18-28	Very channery silt loam, channery silt loam, channery loam.	GM, GM-GC, GC	A-2, A-4, A-6	15-40	60-80	30-55	25-50	20-45	15-35	NP-15
	28-60	Weathered bedrock	---	---	---	---	---	---	---	---	---
94B, 94C--------- Wedowee	0-7	Sandy loam-------	SM, SM-SC	A-4, A-2	0	95-100	90-100	60-99	23-50	<30	NP-6
	7-11	Loam, sandy clay loam.	SM, SC, CL, ML	A-4, A-6	0	90-100	90-100	80-97	40-75	<32	NP-15
	11-30	Sandy clay, clay loam, clay.	SC, ML, CL, SM	A-6, A-7	0	95-100	95-100	65-97	45-71	30-58	10-25
	30-60	Variable---------	---	---	---	---	---	---	---	---	---
95--------------- Wehadkee	0-10	Silt loam--------	CL, MH, ML	A-6, A-7	0	100	98-100	85-100	51-98	30-58	10-24
	10-52	Loam, sandy clay loam, clay loam.	ML, CL, CL-ML	A-6, A-7, A-4	0	100	99-100	85-100	51-85	25-45	7-20
	52-62	Variable---------	---	---	---	---	---	---	---	---	---
96B-------------- Worsham	0-9	Loam-------------	CL, CL-ML	A-4, A-6	0-5	90-100	85-100	70-100	50-90	20-35	4-12
	9-54	Sandy clay loam, sandy clay, clay.	SC, CH, CL	A-2, A-7	0-5	90-100	85-100	70-100	30-95	42-66	22-40
	54-60	Sandy loam, sandy clay loam, clay loam.	SC, CL	A-2, A-4, A-6, A-7	0-10	90-95	80-95	50-90	30-70	20-50	8-30

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
1B	0-12	10-27	1.25-1.55	0.6-6.0	0.12-0.20	4.5-5.5	Low	0.28	4	---	.5-2
Abell	12-36	30-45	1.35-1.65	0.6-2.0	0.11-0.17	4.5-5.5	Moderate	0.28			
	36-60	10-27	1.45-1.65	0.6-6.0	0.08-0.18	4.5-5.5	Low	0.28			
2B, 2C, 2D	0-5	10-27	1.35-1.55	2.0-6.0	0.15-0.20	4.5-5.5	Low	0.37	3	---	1-2
Albemarle	5-30	20-35	1.30-1.50	0.6-2.0	0.13-0.18	4.5-5.5	Low	0.37			
	30-38	5-25	1.20-1.40	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.28			
	38	---	---	---	---	---	---	----			
3C, 3D, 3E	0-5	10-25	1.35-1.55	2.0-6.0	0.12-0.17	4.5-5.5	---	----	---	---	1-2
Albemarle	5-30	20-35	1.30-1.50	0.6-2.0	0.13-0.18	4.5-5.5	Low	0.37			
	30-38	5-25	1.20-1.40	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.28			
	38	---	---	---	---	---	---	----			
4B, 4C, 4D, 4E	0-10	10-25	1.35-1.60	2.0-6.0	0.13-0.18	4.5-6.0	Low	0.24	2	---	1-3
Ashe	10-19	10-25	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low	0.17			
	19-24	5-15	1.45-1.65	2.0-6.0	0.08-0.12	4.5-6.0	Low	0.17			
	24	---	---	---	---	---	---	----			
5B	0-12	7-25	1.30-1.60	0.6-6.0	0.10-0.18	4.5-5.5	Low	0.37	4	---	.5-2
Belvoir	12-19	20-35	1.35-1.65	0.6-2.0	0.13-0.18	4.5-5.5	Moderate	0.37			
	19-28	15-30	1.70-1.90	0.06-0.2	0.07-0.11	4.5-5.5	Low	0.28			
	28-45	10-30	1.35-1.65	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.28			
	45-72	10-45	1.25-1.55	0.06-2.0	0.10-0.15	4.5-5.5	Moderate	0.28			
6	0-4	10-25	1.25-1.40	0.6-6.0	0.12-0.16	4.5-6.0	Low	0.37	4	---	2-3
Bermudian	4-45	17-35	1.30-1.50	0.6-6.0	0.12-0.16	4.5-6.0	Low	0.28			
	45-60	5-20	1.35-1.55	6.0-20	0.04-0.08	4.5-6.0	Low	0.17			
7B, 7C, 7D	0-8	10-25	1.20-1.50	0.6-6.0	0.14-0.19	3.6-5.5	Low	0.32	4	---	1-2
Braddock	8-60	35-55	1.20-1.50	0.6-2.0	0.12-0.17	4.5-5.5	Moderate	0.24			
8C3	0-4	27-40	1.20-1.50	0.6-2.0	0.14-0.19	4.5-5.5	Low	0.32	3	---	.5-1
Braddock	4-60	35-55	1.20-1.50	0.6-2.0	0.12-0.17	4.5-5.5	Moderate	0.24			
9B, 9C, 9D	0-8	10-25	1.00-1.20	0.6-6.0	0.14-0.19	3.6-5.5	Low	0.20	4	---	1-2
Braddock	8-60	35-55	1.20-1.50	0.6-2.0	0.14-0.19	3.6-5.5	Moderate	0.24			
10	0-10	3-12	1.60-1.75	>6.0	0.06-0.10	6.1-6.5	Low	0.10	5	---	.5-1
Buncombe	10-60	3-12	1.60-1.75	>6.0	0.03-0.07	4.5-6.0	Low	0.10			
11D*, 11E*:											
Cataska	0-5	12-22	1.30-1.40	2.0-20	0.10-0.14	4.5-5.5	Low	0.15	1	---	.5-2
	5-20	12-22	1.30-1.45	2.0-20	0.04-0.09	4.5-5.5	Low	0.15			
	20-38	---	---	---	---	---	---	----			
	38	---	---	---	---	---	---	----			
Hartleton	0-7	10-25	1.20-1.40	0.6-6.0	0.10-0.14	4.5-5.5	Low	0.15	3	---	.5-2
	7-32	15-27	1.40-1.60	0.6-6.0	0.06-0.10	4.5-5.5	Low	0.20			
	32-44	15-27	1.40-1.60	0.6-6.0	0.04-0.08	4.5-5.5	Low	0.20			
	44	---	---	---	---	---	---	----			
12C, 12D, 12E, 13C, 13D, 13E	0-5	5-20	1.20-1.50	2.0-6.0	0.14-0.20	5.1-6.5	Low	0.32	2	---	1-3
Catoctin	5-18	10-35	1.20-1.50	2.0-6.0	0.08-0.16	5.1-6.5	Low	0.24			
	18-28	10-25	1.20-1.50	2.0-6.0	0.04-0.15	5.6-7.3	Low	0.24			
	28	---	---	---	---	---	---	----			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	G/cm^3	In/hr	In/in	pH					Pct
14B, 14C, 14D, 14E-------------- Chester	0-7	5-20	1.20-1.50	0.6-2.0	0.12-0.16	4.5-5.5	Low-----------	0.32	4	---	1-2
	7-41	18-35	1.20-1.50	0.6-2.0	0.10-0.14	4.5-5.5	Low-----------	0.43			
	41-60	10-27	1.25-1.55	0.6-2.0	0.08-0.12	4.5-5.5	Low-----------	0.49			
15C, 15D, 15E---- Chester	0-7	5-20	1.20-1.50	0.6-2.0	0.12-0.16	4.5-5.5	Low-----------	0.32	4	---	1-2
	7-41	18-35	1.20-1.50	0.6-2.0	0.10-0.14	4.5-5.5	Low-----------	0.43			
	41-60	10-27	1.25-1.55	0.6-2.0	0.08-0.12	4.5-5.5	Low-----------	0.49			
16--------------- Chewacla	0-8	10-27	1.30-1.60	0.6-2.0	0.15-0.24	4.5-6.5	Low-----------	0.28	5	---	1-4
	8-60	18-35	1.30-1.50	0.6-2.0	0.15-0.24	4.5-6.5	Low-----------	0.32			
17--------------- Craigsville	0-8	5-15	1.20-1.50	2.0-20	0.10-0.20	4.5-5.5	Low-----------	0.24	3	---	1-5
	8-23	5-15	1.30-1.60	2.0-20	0.06-0.15	4.5-5.5	Low-----------	0.17			
	23-60	5-10	1.35-1.55	>6.0	0.04-0.09	4.5-5.5	Low-----------	0.17			
18B-------------- Creedmoor	0-8	7-20	1.55-1.70	2.0-6.0	0.10-0.14	3.6-5.5	Low-----------	0.28	3	---	.5-2
	8-22	20-35	1.45-1.65	0.2-0.6	0.13-0.15	3.6-5.5	Moderate------	0.32			
	22-70	35-60	1.30-1.50	<0.06	0.13-0.15	3.6-5.5	Moderate------	0.32			
19B, 19C, 19D---- Cullen	0-8	15-27	1.20-1.50	2.0-6.0	0.14-0.19	5.1-6.0	Low-----------	0.37	4	---	1-3
	8-60	35-70	1.30-1.60	0.6-2.0	0.10-0.14	5.1-6.0	Moderate------	0.24			
	60-67	20-50	1.30-1.50	0.6-2.0	0.14-0.19	5.1-6.0	Moderate------	0.24			
20B3, 20C3, 20D3- Cullen	0-8	27-40	1.20-1.50	0.6-2.0	0.12-0.17	5.1-6.0	Moderate------	0.37	3	---	1-3
	8-60	35-70	1.30-1.60	0.6-2.0	0.10-0.14	5.1-6.0	Moderate------	0.24			
	60-67	20-50	1.30-1.50	0.6-2.0	0.14-0.19	5.1-6.0	Moderate------	0.24			
21B, 21C, 21D---- Culpeper	0-8	10-25	1.10-1.30	2.0-6.0	0.10-0.15	4.5-5.5	Low-----------	0.37	4	---	1-2
	8-30	35-55	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Moderate------	0.28			
	30-37	30-40	1.35-1.50	0.6-2.0	0.13-0.19	4.5-5.5	Moderate------	0.17			
	37-45	10-20	1.10-1.30	0.6-2.0	0.08-0.15	4.5-5.5	Low-----------	0.17			
22C3------------- Culpeper	0-8	20-35	1.35-1.50	0.6-2.0	0.13-0.19	4.5-5.5	Moderate------	0.37	3	---	.3-.5
	8-30	35-55	1.20-1.40	0.6-2.0	0.13-0.18	4.5-5.5	Moderate------	0.28			
	30-37	30-40	1.35-1.50	0.6-2.0	0.13-0.19	4.5-5.5	Moderate------	0.17			
	37-45	10-20	1.10-1.30	0.6-2.0	0.08-0.15	4.5-5.5	Low-----------	0.17			
23B, 23C--------- Davidson	0-4	10-25	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.5	Low-----------	0.28	5	---	2-3
	4-10	27-40	1.20-1.50	0.6-2.0	0.15-0.18	4.5-6.0	Low-----------	0.32			
	10-63	40-60	1.20-1.45	0.6-2.0	0.12-0.16	4.5-6.0	Low-----------	0.24			
	63-88	30-60	1.25-1.55	0.6-2.0	0.12-0.18	4.5-6.0	Low-----------	0.28			
24B-------------- Dogue	0-10	5-15	1.30-1.45	0.6-2.0	0.14-0.20	3.6-5.5	Low-----------	0.37	4	---	.5-1
	10-70	35-50	1.45-1.60	0.2-0.6	0.12-0.19	3.6-5.5	Moderate------	0.28			
25B, 25C--------- Dyke	0-8	10-27	1.20-1.40	0.6-6.0	0.17-0.22	4.5-5.5	Low-----------	0.37	4	---	.1-2
	8-64	35-70	1.25-1.55	0.6-2.0	0.14-0.19	4.5-5.5	Moderate------	0.28			
26B3, 26C3, 26D3- Dyke	0-8	27-40	1.25-1.50	0.6-2.0	0.15-0.20	4.5-5.5	Low-----------	0.37	3	---	.1-1
	8-64	35-70	1.25-1.55	0.6-2.0	0.14-0.19	4.5-5.5	Moderate------	0.28			
27B, 27C, 27D, 28C3, 28D3------ Elioak	0-8	10-25	1.20-1.50	0.6-2.0	0.12-0.24	4.5-6.0	Low-----------	0.32	4	---	1-2
	8-39	35-55	1.20-1.50	0.6-2.0	0.08-0.12	4.5-5.5	Moderate------	0.28			
	39-72	30-50	1.25-1.55	0.6-2.0	0.08-0.12	4.5-5.5	Low-----------	0.49			
29B, 29C, 29D, 29E, 30C3, 30D3- Fauquier	0-6	10-30	1.25-1.55	0.6-6.0	0.15-0.21	5.1-6.0	Low-----------	0.32	3	---	1-3
	6-34	35-60	1.35-1.65	0.6-2.0	0.12-0.18	4.5-6.0	Moderate------	0.28			
	34-60	---	---	---	---	---	-------------	----			
31C, 31D--------- Fauquier	0-6	10-25	1.25-1.55	0.6-6.0	0.15-0.21	5.1-6.0	Low-----------	0.28	3	---	1-3
	6-34	35-60	1.35-1.65	0.6-2.0	0.12-0.18	4.5-6.0	Moderate------	0.28			
	34-60	---	---	---	---	---	-------------	----			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm^3	In/hr	In/in	pH					Pct
32B, 32C	0-8	5-27	1.25-1.55	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.37	4	---	1-3
Fluvanna	8-48	35-65	1.30-1.60	0.06-0.6	0.10-0.17	4.5-5.5	Moderate	0.28			
	48-60	20-40	1.30-1.60	0.06-0.6	0.05-0.09	4.5-5.5	Moderate	0.28			
33C	0-8	5-27	1.25-1.55	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.24	4	---	1-3
Fluvanna	8-48	35-65	1.30-1.60	0.06-0.6	0.10-0.17	4.5-5.5	Moderate	0.28			
	48-60	30-40	1.30-1.60	0.06-0.6	0.05-0.09	4.5-5.5	Moderate	0.28			
34B, 34C, 34D, 34E	0-8	15-25	1.20-1.40	0.6-2.0	0.14-0.24	4.5-5.5	Low	0.32	3	---	1-3
Glenelg	8-28	20-32	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.43			
	28-80	5-20	1.40-1.60	0.6-2.0	0.10-0.19	4.5-5.5	Low	0.49			
35C*: Hartleton	0-7	10-25	1.20-1.40	0.6-6.0	0.10-0.14	4.5-5.5	Low	0.15	3	---	.5-2
	7-32	15-27	1.40-1.60	0.6-6.0	0.06-0.10	4.5-5.5	Low	0.20			
	32-44	15-27	1.40-1.60	0.6-6.0	0.04-0.08	4.5-5.5	Low	0.20			
	44	---	---	---	---	---	---	---			
Cataska	0-5	12-22	1.30-1.40	2.0-20	0.10-0.14	4.5-5.5	Low	0.15	1	---	.5-2
	5-20	12-22	1.30-1.45	2.0-20	0.04-0.09	4.5-5.5	Low	0.15			
	20-38	---	---	---	---	---	---	---			
	38	---	---	---	---	---	---	---			
36B, 36C, 36D, 36E, 37B3, 37C3, 37D3, 37E3	0-7	10-25	1.35-1.60	2.0-6.0	0.12-0.20	4.5-5.5	Low	0.20	5	---	1-2
Hayesville	7-58	30-50	1.20-1.35	0.6-2.0	0.15-0.20	4.5-5.5	Low	0.24			
	58-83	20-40	1.30-1.40	0.6-2.0	0.12-0.20	4.5-5.5	Low	0.20			
38C, 38D, 38E	0-7	12-26	1.20-1.50	2.0-6.0	0.12-0.20	4.5-5.5	Low	0.24	4	---	1-2
Hayesville	7-58	35-65	1.30-1.60	0.6-2.0	0.15-0.20	4.5-5.5	Low	0.28			
	58-83	25-40	1.25-1.55	0.6-2.0	0.12-0.20	4.5-5.5	Low	0.28			
39C, 39D, 39E	0-10	5-20	1.20-1.50	2.0-6.0	0.14-0.19	4.5-5.5	Low	0.32	2	---	.5-2
Hazel	10-20	10-18	1.20-1.50	2.0-6.0	0.12-0.17	4.5-5.5	Low	0.24			
	20-30	10-18	1.30-1.55	2.0-6.0	0.12-0.15	4.5-5.5	Low	0.24			
	30	---	---	---	---	---	---	---			
40D, 40E	0-10	5-18	1.20-1.50	2.0-6.0	0.11-0.16	4.5-5.5	Low	0.24	2	---	.5-2
Hazel	10-20	10-18	1.20-1.50	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.24			
	20-30	10-18	1.20-1.50	2.0-6.0	0.10-0.14	4.5-5.5	Low	0.24			
	30	---	---	---	---	---	---	---			
41B, 41C, 42B3, 42C3, 42D3	0-8	10-35	1.35-1.55	0.6-2.0	0.12-0.15	4.5-6.5	Low	0.28	5	---	.5-2
Hiwassee	8-64	35-60	1.30-1.45	0.6-2.0	0.12-0.15	4.5-6.5	Low	0.28			
43B, 43C, 43D, 43E	0-4	10-25	1.20-1.40	2.0-6.0	0.08-0.12	4.5-6.0	Low	0.20	2	---	.5-2
Klinesville	4-10	10-20	1.40-1.60	2.0-6.0	0.06-0.10	4.5-6.0	Low	0.20			
	10-14	10-20	1.40-1.60	2.0-6.0	0.04-0.08	4.5-6.0	Low	0.20			
	14	---	---	---	---	---	---	---			
44C, 44D, 45C, 45D	0-7	10-25	1.00-1.20	0.6-6.0	0.13-0.15	4.5-6.0	Low	0.17	4	---	1-3
Lew	7-60	28-40	1.20-1.50	0.6-2.0	0.11-0.16	4.5-6.0	Moderate	0.17			
46B	0-9	10-25	1.20-1.50	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.43	3	---	.5-2
Lignum	9-38	35-55	1.25-1.55	0.06-0.6	0.10-0.18	4.5-5.5	Moderate	0.28			
	38-58	20-40	1.25-1.55	0.2-0.6	0.10-0.18	4.5-5.5	Low	0.28			
	58	---	---	---	---	---	---	---			
47C, 47D, 47E	0-5	5-15	1.25-1.55	6.0-20	0.09-0.12	4.5-6.0	Low	0.24	2	---	.5-1
Louisburg	5-60	10-25	1.25-1.55	6.0-20	0.10-0.12	4.5-6.0	Low	0.24			
	60	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	G/cm^3	In/hr	In/in	pH					Pct
48D, 48E	0-5	5-15	1.25-1.55	6.0-20	0.03-0.07	4.5-6.0	Low	0.10	2	---	.5-1
Louisburg	5-60	10-25	1.25-1.55	6.0-20	0.06-0.10	4.5-6.0	Low	0.24			
	60	---	---	---	---	---	---	----			
49B	0-18	10-27	1.25-1.55	0.6-6.0	0.14-0.20	4.5-5.5	Low	0.37	4	---	2-4
Manassas	18-64	20-35	1.30-1.60	0.6-6.0	0.16-0.20	4.5-5.5	Low	0.24			
50D, 50E	0-8	10-25	1.20-1.40	0.6-2.0	0.17-0.21	4.5-6.0	Low	0.43	3	---	1-3
Manor	8-18	10-25	1.30-1.50	0.6-2.0	0.14-0.20	4.5-6.0	Low	0.32			
	18-62	5-20	1.25-1.50	0.6-6.0	0.10-0.17	4.5-6.0	Low	0.49			
51B, 51C, 51D, 51E	0-6	7-27	1.25-1.55	2.0-6.0	0.10-0.16	3.6-5.5	Low	0.28	1	---	.5-2
Manteo	6-18	10-35	1.35-1.65	2.0-6.0	0.07-0.14	3.6-5.5	Low	0.28			
	18	---	---	---	---	---	---	----			
52D, 52E	0-6	7-27	1.25-1.55	2.0-6.0	0.07-0.13	3.6-5.5	Low	0.28	1	---	.5-2
Manteo	6-18	10-35	1.35-1.65	2.0-6.0	0.07-0.14	3.6-5.5	Low	0.28			
	18	---	---	---	---	---	---	----			
53B, 53C	0-7	5-20	1.20-1.50	2.0-6.0	0.10-0.17	4.5-5.5	Low	0.32	4	---	1-3
Masada	7-33	35-55	1.30-1.60	0.6-2.0	0.10-0.17	4.5-5.5	Moderate	0.24			
	33-62	30-40	1.30-1.60	0.6-2.0	0.10-0.17	4.5-5.5	Moderate	0.24			
54B, 54C	0-10	5-20	1.30-1.55	>6.0	0.11-0.17	4.5-6.0	Low	0.24	4	---	1-2
Mayodan	10-53	35-60	1.30-1.60	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.24			
	53-60	---	---	---	0.02-0.06	4.5-5.5	Low	----			
55B	0-7	12-25	1.30-1.55	0.6-2.0	0.14-0.20	6.1-6.5	Low	0.37	4	---	.5-2
McQueen	7-42	35-55	1.20-1.45	0.06-0.2	0.14-0.18	4.5-5.5	Moderate	0.37			
	42-52	27-40	1.25-1.50	0.2-0.6	0.14-0.18	4.5-5.5	Low	0.37			
	52-64	12-32	1.30-1.50	0.2-0.6	0.14-0.18	4.5-5.5	Low	0.32			
56B, 56C	0-14	10-27	1.00-1.25	2.0-6.0	0.17-0.20	4.5-6.0	Low	0.37	3	---	2-4
Meadowville	14-46	20-35	1.20-1.50	0.6-6.0	0.14-0.19	4.5-6.0	Moderate	0.28			
	46-73	20-50	1.20-1.50	0.6-6.0	0.11-0.17	4.5-6.0	Moderate	0.28			
57B	0-10	10-20	1.20-1.30	0.6-2.0	0.18-0.22	5.1-6.5	Low	0.37	4	---	1-2
Mount Lucas	10-48	17-32	1.30-1.60	0.06-0.6	0.12-0.16	5.1-7.3	Moderate	0.28			
	48-64	5-20	1.30-1.70	0.06-0.2	0.04-0.12	5.6-7.3	Low	0.28			
58B, 58C, 58D, 58E	0-7	5-20	1.20-1.50	2.0-6.0	0.14-0.20	4.5-6.0	Low	0.37	4	---	1-3
Myersville	7-28	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low	0.32			
	28-44	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low	0.32			
	44-65	---	---	---	---	---	---	----			
59C, 59D, 59E	0-7	5-20	1.20-1.50	2.0-6.0	0.14-0.20	4.5-6.0	Low	0.32	4	---	1-3
Myersville	7-28	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low	0.32			
	28-44	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low	0.32			
	44-65	---	---	---	---	---	---	----			
60C*, 60D*, 60E*:											
Myersville	0-7	5-20	1.20-1.50	2.0-6.0	0.14-0.20	4.5-6.0	Low	0.32	4	---	1-3
	7-28	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low	0.32			
	28-44	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low	0.32			
	44-65	---	---	---	---	---	---	----			
Catoctin	0-5	5-20	1.20-1.50	2.0-6.0	0.14-0.20	5.1-6.5	Low	0.32	2	---	1-3
	5-18	10-35	1.20-1.50	2.0-6.0	0.08-0.16	5.1-6.5	Low	0.24			
	18-28	10-25	1.20-1.50	2.0-6.0	0.04-0.15	5.6-7.3	Low	0.24			
	28	---	---	---	---	---	---	----			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	G/cm^3	In/hr	In/in	pH					Pct
61D*, 61E*: Myersville------	0-7	5-20	1.20-1.50	2.0-6.0	0.14-0.20	4.5-6.0	Low-----------	0.32	4	---	1-3
	7-28	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low-----------	0.32			
	28-44	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low-----------	0.32			
	44-65	---	---	---	---	---	-------------	----			
Rock outcrop.											
62B, 62C, 62D---- Nason	0-8	10-25	1.25-1.55	0.6-2.0	0.14-0.20	4.5-6.5	Low-----------	0.37	4	---	1-3
	8-39	35-50	1.30-1.60	0.6-2.0	0.12-0.19	4.5-5.5	Moderate------	0.28			
	39-50	10-25	1.25-1.55	0.6-2.0	0.15-0.20	4.5-5.5	Low-----------	0.28			
63B-------------- Orange	0-9	10-25	1.25-1.55	0.6-2.0	0.14-0.20	5.1-6.5	Low-----------	0.49	3	---	1-3
	9-33	35-60	1.35-1.65	0.06-0.2	0.10-0.19	5.1-6.5	High----------	0.28			
	33-60	10-35	1.35-1.65	0.2-0.6	0.13-0.20	5.6-7.8	Low-----------	0.28			
64B-------------- Orange	0-9	10-25	1.25-1.55	0.6-2.0	0.14-0.20	5.1-6.5	Low-----------	0.24	2	---	1-3
	9-33	35-60	1.10-1.40	0.06-0.2	0.10-0.19	5.1-6.5	High----------	0.24			
	33-60	10-35	1.30-1.60	0.2-0.6	0.13-0.20	5.6-7.8	Low-----------	0.24			
65B, 65C--------- Pacolet	0-6	8-20	1.00-1.50	2.0-6.0	0.08-0.12	4.5-6.5	Low-----------	0.20	3	3	.5-2
	6-32	35-65	1.30-1.50	0.6-2.0	0.12-0.15	4.5-6.0	Low-----------	0.28			
	32-60	15-30	1.20-1.50	0.6-2.0	0.08-0.15	4.5-6.0	Low-----------	0.28			
66C, 66D, 66E, 67D, 67E-------- Parker	0-14	10-20	1.30-1.50	2.0-6.0	0.06-0.14	4.5-5.5	Low-----------	0.17	5	---	1-2
	14-38	10-25	1.30-1.55	2.0-6.0	0.10-0.14	4.5-5.5	Low-----------	0.20			
	38-67	5-20	1.35-1.60	6.0-20	0.04-0.08	4.5-5.5	Low-----------	0.20			
68B, 68C, 68D---- Penn	0-7	10-20	1.20-1.40	0.6-6.0	0.16-0.20	3.6-5.5	Low-----------	0.32	3	---	1-3
	7-21	18-32	1.40-1.60	0.6-6.0	0.14-0.18	3.6-6.0	Low-----------	0.24			
	21-29	18-25	1.40-1.60	0.6-6.0	0.04-0.08	5.1-6.5	Low-----------	0.24			
	29	---	---	---	---	---	-------------	----			
69*. Pits											
70C, 70D, 70E---- Porters	0-8	10-20	1.15-1.45	0.6-2.0	0.12-0.16	4.5-6.0	Low-----------	0.17	4	---	3-5
	8-26	15-35	1.25-1.55	0.6-2.0	0.14-0.20	4.5-6.0	Low-----------	0.24			
	26-32	5-20	1.20-1.50	2.0-6.0	0.10-0.17	4.5-6.0	Low-----------	----			
	32-59	---	---	---	---	---	-------------	----			
71B, 71C, 71D, 71E------------- Rabun	0-6	18-35	1.20-1.50	0.6-2.0	0.12-0.18	5.1-6.5	Low-----------	0.32	4	---	1-2
	6-48	35-80	1.30-1.60	0.6-2.0	0.12-0.18	5.1-6.5	Low-----------	0.28			
	48-63	27-50	1.30-1.60	0.6-2.0	0.10-0.15	5.1-6.5	Low-----------	0.28			
72B3, 72C3, 72D3, 72E3------------ Rabun	0-4	30-50	1.20-1.50	0.6-2.0	0.10-0.15	5.1-6.5	Low-----------	0.32	3	---	<.5
	4-48	35-80	1.30-1.60	0.6-2.0	0.12-0.18	5.1-6.5	Low-----------	0.28			
	48-63	27-50	1.30-1.60	0.6-2.0	0.10-0.15	5.1-6.5	Low-----------	0.28			
73C, 73D, 73E---- Rabun	0-6	18-35	1.20-1.50	0.6-2.0	0.10-0.15	5.1-6.5	Low-----------	0.20	4	---	1-2
	6-48	35-80	1.20-1.50	0.6-2.0	0.12-0.18	5.1-6.5	Low-----------	0.28			
	48-63	27-50	1.20-1.50	0.6-2.0	0.06-0.12	5.1-6.5	Low-----------	0.28			
74B, 74C, 74D---- Rapidan	0-6	15-27	1.20-1.50	0.6-6.0	0.14-0.20	5.1-7.3	Low-----------	0.37	4	---	1-4
	6-54	35-65	1.35-1.55	0.6-2.0	0.10-0.19	5.1-6.0	Moderate------	0.32			
	54-70	20-40	1.30-1.50	0.6-2.0	0.05-0.10	5.1-6.0	Low-----------	0.17			
75C3, 75D3------- Rapidan	0-6	27-35	1.25-1.55	0.6-2.0	0.16-0.19	5.1-7.3	Low-----------	0.37	3	---	.1-2
	6-54	35-65	1.35-1.55	0.6-2.0	0.10-0.19	5.1-6.0	Moderate------	0.32			
	54-70	20-40	1.30-1.50	0.6-2.0	0.05-0.10	5.1-6.0	Low-----------	0.17			
76--------------- Riverview	0-12	10-27	1.25-1.50	0.6-2.0	0.16-0.24	4.5-5.5	Low-----------	0.32	5	---	.5-2
	12-35	18-35	1.25-1.55	0.6-2.0	0.15-0.22	4.5-5.5	Low-----------	0.24			
	35-60	4-35	1.30-1.55	2.0-6.0	0.07-0.11	4.5-5.5	Low-----------	0.17			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodi-bility group	Organic matter
								K	T		
	In	Pct	G/cm^3	In/hr	In/in	pH					Pct
77*:											
Riverview	0-12	10-27	1.25-1.50	0.6-2.0	0.16-0.24	4.5-5.5	Low	0.32	5	---	.5-2
	12-35	18-35	1.25-1.55	0.6-2.0	0.15-0.22	4.5-5.5	Low	0.24			
	35-60	4-35	1.30-1.55	2.0-6.0	0.07-0.11	4.5-5.5	Low	0.17			
Chewacla	0-8	10-27	1.30-1.60	0.6-2.0	0.15-0.24	4.5-6.5	Low	0.28	5	---	1-4
	8-60	18-35	1.30-1.50	0.6-2.0	0.15-0.24	4.5-6.5	Low	0.32			
78	0-11	10-20	1.10-1.30	0.2-2.0	0.14-0.18	4.5-6.0	Low	0.43	4	---	2-4
Rowland	11-38	15-32	1.20-1.50	0.2-2.0	0.14-0.18	4.5-6.0	Low	0.28			
	38-60	15-32	1.20-1.50	0.2-2.0	0.12-0.16	4.5-6.0	Low	0.28			
79B	0-18	15-35	1.20-1.50	0.6-2.0	0.14-0.18	5.1-6.5	Moderate	0.28	5	---	.5-2
Starr	18-68	18-35	1.20-1.50	0.6-2.0	0.14-0.18	5.1-6.5	Moderate	0.28			
80B, 80C	0-6	12-27	1.10-1.40	0.6-2.0	0.14-0.20	4.5-5.5	Low	0.37	4	---	0-2
Tatum	6-42	45-60	1.40-1.60	0.6-2.0	0.10-0.19	4.5-5.5	Moderate	0.28			
	42-51	20-40	1.40-1.60	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.28			
	51	---	---	---	---	---	------------	----			
81B, 81C, 81D	0-10	10-25	1.20-1.40	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.32	4	---	.5-2
Thurmont	10-46	18-35	1.30-1.50	0.6-2.0	0.13-0.19	4.5-5.5	Low	0.20			
	46-56	18-30	1.30-1.50	0.6-2.0	0.07-0.12	4.5-5.5	Low	0.20			
	56-68	10-20	1.20-1.40	0.6-2.0	0.04-0.08	4.5-5.5	Low	0.20			
82C, 82D	0-10	10-25	1.20-1.40	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.24	4	---	.5-2
Thurmont	10-46	18-35	1.30-1.50	0.6-2.0	0.13-0.18	4.5-5.5	Low	0.20			
	46-56	18-30	1.30-1.50	0.6-2.0	0.07-0.12	4.5-5.5	Low	0.20			
	56-68	10-20	1.20-1.40	0.6-2.0	0.04-0.08	4.5-5.5	Low	0.20			
83	0-9	3-17	1.35-1.45	2.0-6.0	0.09-0.12	5.1-6.5	Low	0.24	5	---	1-2
Toccoa	9-66	2-19	1.40-1.50	2.0-6.0	0.09-0.12	5.1-6.5	Low	0.10			
84B, 84C	0-8	12-27	1.20-1.50	0.6-2.0	0.20-0.24	4.5-6.0	Low	0.37	4	---	2-4
Totier	8-40	35-60	1.30-1.60	0.6-2.0	0.12-0.19	4.5-6.0	Moderate	0.28			
	40-49	20-35	1.30-1.60	0.6-2.0	0.06-0.12	4.5-6.0	Low	0.28			
	49-63	---	---	---	---	---	------------	----			
85C3	0-8	27-35	1.20-1.50	0.6-2.0	0.18-0.22	4.5-6.0	Moderate	0.37	3	---	1-2
Totier	8-40	35-60	1.30-1.60	0.6-2.0	0.12-0.19	4.5-6.0	Moderate	0.28			
	40-49	20-35	1.30-1.60	0.6-2.0	0.06-0.12	4.5-6.0	Low	0.28			
	49-63	---	---	---	---	---	------------	----			
86B, 86C	0-12	10-25	1.20-1.55	2.0-6.0	0.10-0.17	4.5-5.5	Low	0.32	5	---	.5-2
Turbeville	12-75	30-60	1.30-1.50	0.6-2.0	0.13-0.16	4.5-5.5	Moderate	0.24			
87B, 87C, 87D	0-9	10-20	1.20-1.40	2.0-6.0	0.11-0.22	5.1-6.0	Low	0.24	4	---	4-5
Tusquitee	9-45	20-35	1.25-1.50	0.6-2.0	0.15-0.21	5.1-6.0	Low	0.20			
	45-63	10-20	1.30-1.55	2.0-6.0	0.08-0.14	5.1-6.0	Low	0.20			
88.											
Udorthents											
89B, 89C	0-6	10-25	1.35-1.65	0.6-6.0	0.14-0.20	4.5-6.0	Low	0.32	4	---	1-3
Unison	6-58	30-70	1.30-1.60	0.6-2.0	0.12-0.18	4.5-6.0	Moderate	0.24			
	58-60	30-50	1.30-1.60	0.6-6.0	0.08-0.16	4.5-6.0	Moderate	0.28			
90B, 90C, 90D	0-6	10-25	1.35-1.65	0.6-6.0	0.11-0.17	4.5-6.0	Low	0.24	4	---	1-3
Unison	6-58	30-70	1.30-1.60	0.6-2.0	0.12-0.18	4.5-6.0	Moderate	0.24			
	58-60	30-50	1.30-1.60	0.6-6.0	0.08-0.16	4.5-6.0	Moderate	0.24			
91*.											
Urban land											
92	0-9	10-27	1.20-1.50	0.2-2.0	0.15-0.20	4.5-6.0	Low	0.28	5	---	.5-5
Wahee	9-60	35-55	1.40-1.60	0.06-0.2	0.12-0.20	3.6-5.5	Moderate	0.28			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	G/cm^3	In/hr	In/in	pH					Pct
93C, 93D, 93E---- Watt	0-10	10-27	1.30-1.60	2.0-6.0	0.08-0.12	4.0-5.5	Low-----------	0.32	2	---	.5-1
	10-18	18-32	1.35-1.65	2.0-6.0	0.08-0.12	4.0-5.5	Low-----------	0.24			
	18-28	5-27	1.35-1.65	2.0-6.0	0.04-0.08	4.0-5.5	Low-----------	0.20			
94B, 94C--------- Wedowee	0-7	6-20	1.25-1.50	2.0-6.0	0.10-0.18	4.5-5.5	Low-----------	0.24	3	---	.5-1
	7-11	14-30	1.30-1.50	0.6-2.0	0.12-0.18	4.5-5.5	Low-----------	0.28			
	11-30	35-45	1.25-1.55	0.6-2.0	0.12-0.18	4.5-5.5	Moderate-----	0.28			
	30-60	---	---	---	---	---	-------------	----			
95--------------- Wehadkee	0-10	15-40	1.35-1.50	0.6-2.0	0.15-0.24	5.1-6.5	Low-----------	0.32	5	---	2-5
	10-52	18-35	1.30-1.50	0.6-2.0	0.16-0.20	5.1-6.5	Low-----------	0.32			
	52-62	---	---	---	---	---	-------------	----			
96B-------------- Worsham	0-9	10-25	1.25-1.55	0.6-2.0	0.14-0.20	4.5-5.5	Low-----------	0.37	4	---	1-3
	9-54	30-55	1.35-1.65	0.06-0.6	0.10-0.16	4.5-5.5	Moderate-----	0.28			
	54-60	10-40	1.20-1.50	0.2-0.6	0.08-0.19	4.5-5.5	Moderate-----	0.28			

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* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
1B----------------- Abell	B	None---------	---	---	2.0-3.5	Apparent	Dec-Mar	>60	---	Low-------	Moderate	High.
2B, 2C, 2D, 3C, 3D, 3E----------- Albemarle	B	None---------	---	---	>6.0	---	---	40-60	Hard	Moderate	Moderate	Moderate.
4B, 4C, 4D, 4E----- Ashe	B	None---------	---	---	>6.0	---	---	20-40	Soft	Low-------	Low-------	High.
5B----------------- Belvoir	C	None---------	---	---	1.0-2.0	Perched	Jan-Apr	>60	---	High------	High------	High.
6------------------ Bermudian	B	Occasional	Brief------	Nov-May	3.0-6.0	Apparent	Nov-Mar	>60	---	Moderate	Low-------	Moderate.
7B, 7C, 7D, 8C3, 9B, 9C, 9D-------- Braddock	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	High------	Moderate.
10----------------- Buncombe	A	Frequent-----	Very brief	Feb-Jun	>6.0	---	---	>60	---	Low-------	Low-------	Moderate.
11D*, 11E*:												
Cataska-----------	D	None---------	---	---	>6.0	---	---	20-40	Hard	Moderate	Low-------	Moderate.
Hartleton----------	B	None---------	---	---	>6.0	---	---	40-60	Soft	Moderate	Low-------	High.
12C, 12D, 12E, 13C, 13D, 13E----- Catoctin	C	None---------	---	---	>6.0	---	---	20-40	Hard	Low-------	High------	Moderate.
14B, 14C, 14D, 14E--------------- Chester	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Low-------	High.
15C, 15D, 15E------ Chester	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Low-------	High.
16----------------- Chewacla	C	Occasional	Brief------	Nov-Apr	0.5-1.5	Apparent	Nov-Apr	>60	---	Low-------	High------	Moderate.
17----------------- Craigsville	B	Frequent-----	Very brief	Nov-May	>6.0	---	---	>60	---	Moderate	Low-------	Moderate.
18B----------------- Creedmoor	C	None---------	---	---	1.5-2.0	Perched	Jan-Mar	>60	---	Moderate	High------	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
19B, 19C, 19D, 20B3, 20C3, 20D3- Cullen	C	None---------	---	---	>6.0	---	---	>60	---	Low-------	High------	Moderate.
21B, 21C, 21D, 22C3-------------- Culpeper	C	None---------	---	---	>6.0	---	---	>48	Hard	Moderate	Moderate	Moderate.
23B, 23C----------- Davidson	B	None---------	---	---	>6.0	---	---	>60	---	Low-------	High------	Moderate.
24B---------------- Dogue	C	None---------	---	---	1.5-3.0	Apparent	Jan-Mar	>60	---	Moderate	High------	High.
25B, 25C, 26B3, 26C3, 26D3-------- Dyke	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	High------	Moderate.
27B, 27C, 27D, 28C3, 28D3-------- Elioak	C	None---------	---	---	>6.0	---	---	>60	---	Moderate	High------	Moderate.
29B, 29C, 29D, 29E, 30C3, 30D3, 31C, 31D---------- Fauquier	C	None---------	---	---	>6.0	---	---	>40	Soft	Moderate	High------	High.
32B, 32C, 33C------ Fluvanna	C	None---------	---	---	>6.0	---	---	>60	---	Low-------	High------	High.
34B, 34C, 34D, 34E--------------- Glenelg	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Low-------	High.
35C*:												
Hartleton----------	B	None---------	---	---	>6.0	---	---	40-60	Soft	Moderate	Low-------	High.
Cataska-----------	D	None---------	---	---	>6.0	---	---	20-40	Hard	Moderate	Low-------	Moderate.
36B, 36C, 36D, 36E, 37B3, 37C3, 37D3, 37E3-------- Hayesville	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
38C, 38D, 38E------ Hayesville	C	None---------	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
39C, 39D, 39E, 40D, 40E---------- Hazel	C	None---------	---	---	>6.0	---	---	20-40	Hard	Moderate	Low-------	High.
41B, 41C, 42B3, 42C3, 42D3-------- Hiwassee	B	None---------	---	---	>6.0	---	---	>60	---	Low-------	Moderate	Moderate.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
43B, 43C, 43D, 43E Klinesville	C/D	None	---	---	>6.0	---	---	10-20	Soft	Moderate	Moderate	High.
44C, 44D, 45C, 45D Lew	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate	High.
46B Lignum	C	None	---	---	1.0-2.5	Perched	Dec-May	>40	Hard	Moderate	High	High.
47C, 47D, 47E, 48D, 48E Louisburg	B	None	---	---	>6.0	---	---	>48	Hard	Low	Low	Moderate.
49B Manassas	B	Occasional	Brief	Dec-May	2.0-3.0	Apparent	Dec-May	>60	---	Moderate	High	High.
50D, 50E Manor	B	None	---	---	>6.0	---	---	>60	---	Moderate	Low	Moderate.
51B, 51C, 51D, 51E, 52D, 52E Manteo	C/D	None	---	---	>6.0	---	---	10-20	Hard	Low	Low	High.
53B, 53C Masada	C	None	---	---	>6.0	---	---	>60	---	Low	High	High.
54B, 54C Mayodan	B	None	---	---	>6.0	---	---	>60	---	Low	High	Moderate.
55B McQueen	C	Rare	---	---	>6.0	---	---	>60	---	Low	Moderate	Moderate.
56B, 56C Meadowville	B	None	---	---	3.0-5.0	Apparent	Dec-May	>60	---	Moderate	High	High.
57B Mount Lucas	C	None	---	---	0.5-3.0	Perched	Nov-Mar	>48	Hard	Moderate	High	Moderate.
58B, 58C, 58D, 58E, 59C, 59D, 59E Myersville	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
60C*, 60D*, 60E*: Myersville	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
Catoctin	C	None	---	---	>6.0	---	---	20-40	Hard	Low	High	Moderate.
61D*, 61E*: Myersville	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
Rock outcrop.												

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
62B, 62C, 62D Nason	C	None	---	---	>6.0	---	---	40-60	Soft	Low	Moderate	High.
63B, 64B Orange	D	None	---	---	1.0-3.0	Apparent	Dec-May	40-60	Hard	Moderate	High	Moderate.
65B, 65C Pacolet	B	None	---	---	>6.0	---	---	>60	---	Low	High	High.
66C, 66D, 66E, 67D, 67E Parker	B	None	---	---	>6.0	---	---	>48	Hard	Moderate	Low	High.
68B, 68C, 68D Penn	C	None	---	---	>6.0	---	---	20-40	Soft	Moderate	Low	Moderate.
69*. Pits												
70C, 70D, 70E Porters	B	None	---	---	>6.0	---	---	40-60	Hard	Moderate	Low	High.
71B, 71C, 71D, 71E, 72B3, 72C3, 72D3, 72E3, 73C, 73D, 73E Rabun	B	None	---	---	>6.0	---	---	>60	---	Moderate	High	Moderate.
74B, 74C, 74D, 75C3, 75D3 Rapidan	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
76 Riverview	B	Occasional	Brief	Dec-Mar	3.0-5.0	Apparent	Dec-Mar	>60	---	Low	Low	Moderate.
77*: Riverview	B	Occasional	Brief	Dec-Mar	3.0-5.0	Apparent	Dec-Mar	>60	---	Low	Low	Moderate.
Chewacla	C	Occasional	Brief	Nov-Apr	0.5-1.5	Apparent	Nov-Apr	>60	---	Low	High	Moderate.
78 Rowland	C	Occasional	Brief	Nov-Mar	1.0-3.0	Apparent	Nov-May	>60	---	Moderate	High	Moderate.
79B Starr	C	Occasional	Brief	Nov-Apr	>6.0	---	---	>60	---	Low	Moderate	Moderate.
80B, 80C Tatum	C	None	---	---	>6.0	---	---	>40	Soft	Low	High	High.
81B, 81C, 81D Thurmont	B	None	---	---	4.0-6.0	Apparent	Dec-Mar	>60	---	Moderate	Moderate	High.
82C, 82D Thurmont	B	None	---	---	4.0-6.0	Apparent	Dec-Mar	>60	---	Moderate	Moderate	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
83---------------- Toccoa	B	Occasional	Brief-----	Jan-Dec	2.5-5.0	Apparent	Dec-Apr	>60	---	Low------	Low------	Moderate.
84B, 84C, 85C3---- Totier	C	None--------	---	---	>6.0	---	---	40-60	Soft	Low------	High-----	Moderate.
86B, 86C---------- Turbeville	C	None--------	---	---	>6.0	---	---	>60	---	Low------	High-----	High.
87B, 87C, 87D----- Tusquitee	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
88. Udorthents												
89B, 89C, 90B, 90C, 90D--------- Unison	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	High-----	Moderate.
91*. Urban land												
92---------------- Wahee	D	Occasional	Very brief to brief.	Dec-Apr	0.5-1.5	Apparent	Dec-Mar	>60	---	Moderate	High-----	High.
93C, 93D, 93E----- Watt	D	None--------	---	---	>6.0	---	---	20-40	Soft	Low------	High-----	High.
94B, 94C---------- Wedowee	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate	High.
95---------------- Wehadkee	D	Occasional	Brief-----	Nov-Jun	0-2.5	Apparent	Dec-May	>60	---	Moderate	High-----	Moderate.
96B--------------- Worsham	D	None--------	---	---	0-1.0	Apparent	Nov-Apr	>60	---	Moderate	High-----	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Abell	Fine-loamy, mixed, thermic Aquic Hapludults
Albemarle	Fine-loamy, mixed, mesic Typic Hapludults
Ashe	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Belvoir	Fine-loamy, mixed, mesic Aquic Fragiudults
Bermudian	Fine-loamy, mixed, mesic Fluventic Dystrochrepts
Braddock	Clayey, mixed, mesic Typic Hapludults
Buncombe	Mixed, thermic Typic Udipsamments
Cataska	Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts
Catoctin	Loamy-skeletal, mixed, mesic Ruptic-Alfic Eutrochrepts
Chester	Fine-loamy, mixed, mesic Typic Hapludults
Chewacla	Fine-loamy, mixed, thermic Fluvaquentic Dystrochrepts
Craigsville	Loamy-skeletal, mixed, mesic Fluventic Dystrochrepts
Creedmoor	Clayey, mixed, thermic Aquic Hapludults
Cullen	Clayey, mixed, thermic Typic Hapludults
Culpeper	Clayey, kaolinitic, mesic Typic Hapludults
Davidson	Clayey, kaolinitic, thermic Rhodic Paleudults
Dogue	Clayey, mixed, thermic Aquic Hapludults
Dyke	Clayey, mixed, mesic Typic Rhodudults
Elioak	Clayey, kaolinitic, mesic Typic Hapludults
Fauquier	Fine, mixed, mesic Ultic Hapludalfs
Fluvanna	Clayey, mixed, thermic Typic Hapludults
Glenelg	Fine-loamy, mixed, mesic Typic Hapludults
Hartleton	Loamy-skeletal, mixed, mesic Typic Hapludults
Hayesville	Clayey, oxidic, mesic Typic Hapludults
Hazel	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Hiwassee	Clayey, kaolinitic, thermic Typic Rhodudults
Klinesville	Loamy-skeletal, mixed, mesic Lithic Dystrochrepts
Lew	Loamy-skeletal, mixed, mesic Typic Hapludults
Lignum	Clayey, mixed, thermic Aquic Hapludults
Louisburg	Coarse-loamy, mixed, thermic Ruptic-Ultic Dystrochrepts
Manassas	Fine-loamy, mixed, mesic Ultic Hapludalfs
Manor	Coarse-loamy, micaceous, mesic Typic Dystrochrepts
Manteo	Loamy-skeletal, mixed, thermic Lithic Dystrochrepts
Masada	Clayey, mixed, thermic Typic Hapludults
Mayodan	Clayey, kaolinitic, thermic Typic Hapludults
McQueen	Clayey, mixed, thermic Typic Hapludults
Meadowville	Fine-loamy, mixed, mesic Typic Hapludults
*Mount Lucas	Fine-loamy, mixed, mesic Aquic Hapludalfs
Myersville	Fine-loamy, mixed, mesic Ultic Hapludalfs
Nason	Clayey, mixed, thermic Typic Hapludults
Orange	Fine, montmorillonitic, thermic Albaquic Hapludalfs
Pacolet	Clayey, kaolinitic, thermic Typic Hapludults
Parker	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Penn	Fine-loamy, mixed, mesic Ultic Hapludalfs
Porters	Fine-loamy, mixed, mesic Humic Hapludults
Rabun	Clayey, kaolinitic, mesic Typic Rhodudults
Rapidan	Clayey, mixed, mesic Typic Rhodudults
Riverview	Fine-loamy, mixed, thermic Fluventic Dystrochrepts
Rowland	Fine-loamy, mixed, mesic Fluvaquentic Dystrochrepts
Starr	Fine-loamy, mixed, thermic Fluventic Dystrochrepts
Tatum	Clayey, mixed, thermic Typic Hapludults
Thurmont	Fine-loamy, mixed, mesic Typic Hapludults
Toccoa	Coarse-loamy, mixed, nonacid, thermic Typic Udifluvents
Totier	Clayey, mixed, thermic Typic Hapludults
Turbeville	Clayey, mixed, thermic Typic Paleudults
Tusquitee	Fine-loamy, mixed, mesic Humic Hapludults
Udorthents	Udorthents
Unison	Clayey, mixed, mesic Typic Hapludults
Wahee	Clayey, mixed, thermic Aeric Ochraquults
Watt	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Wedowee	Clayey, kaolinitic, thermic Typic Hapludults
Wehadkee	Fine-loamy, mixed, nonacid, thermic Typic Fluvaquents
Worsham	Clayey, mixed, thermic Typic Ochraquults

*The soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range for the series.

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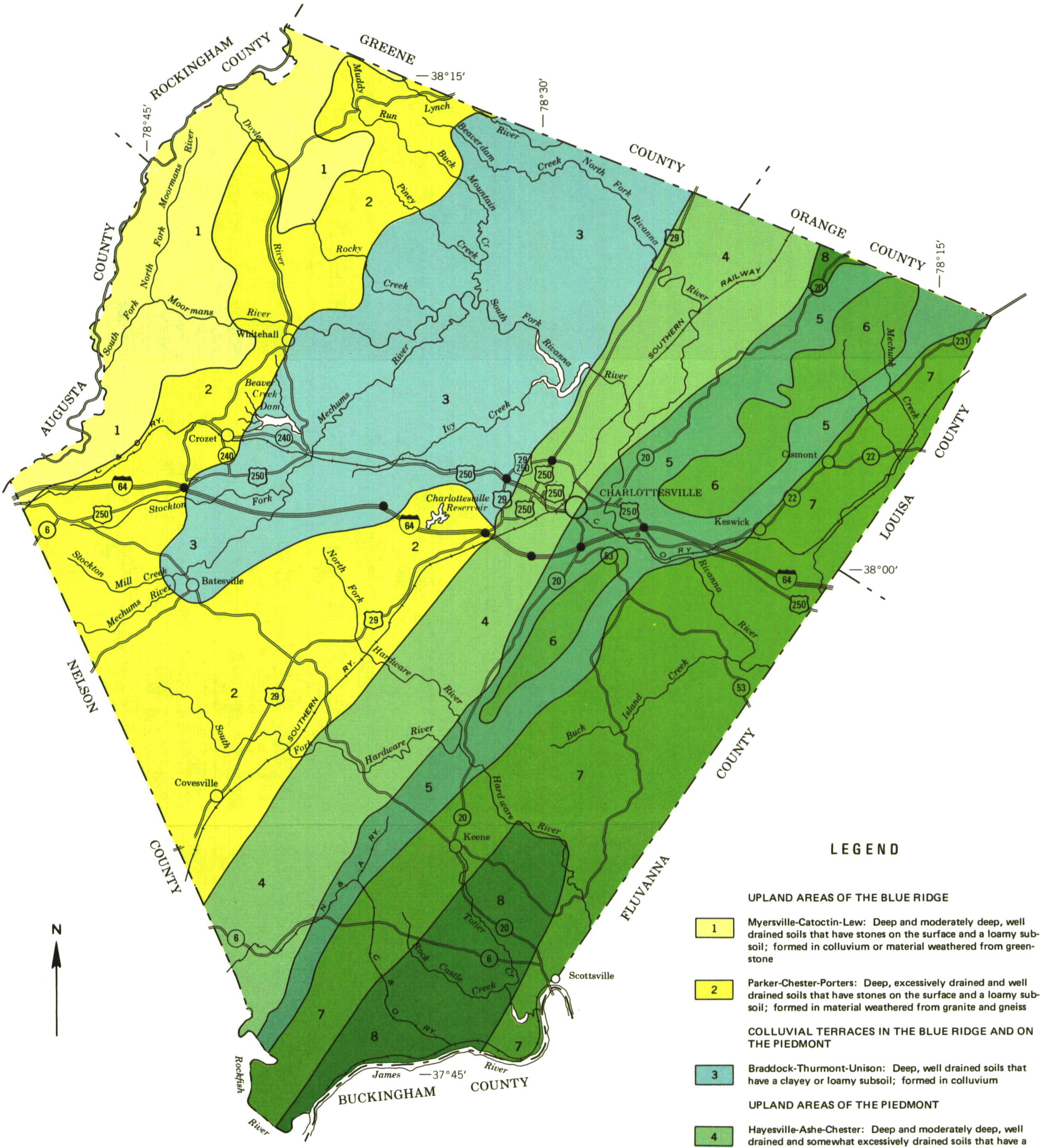


LEGEND

UPLAND AREAS OF THE BLUE RIDGE

1 Myersville-Catoctin-Lew: Deep and moderately deep, well drained soils that have stones on the surface and a loamy subsoil; formed in colluvium or material weathered from greenstone

2 Parker-Chester-Porters: Deep, excessively drained and well drained soils that have stones on the surface and a loamy subsoil; formed in material weathered from granite and gneiss

COLLUVIAL TERRACES IN THE BLUE RIDGE AND ON THE PIEDMONT

3 Braddock-Thurmont-Unison: Deep, well drained soils that have a clayey or loamy subsoil; formed in colluvium

UPLAND AREAS OF THE PIEDMONT

4 Hayesville-Ashe-Chester: Deep and moderately deep, well drained and somewhat excessively drained soils that have a clayey or loamy subsoil; formed in material weathered from granite and gneiss

5 Elioak-Hazel-Glenelg: Deep and moderately deep, well drained and excessively drained soils that have a clayey or loamy subsoil; formed in material weathered from quartz mica schist

6 Rabun-Myersville-Catoctin: Deep and moderately deep, well drained soils that have a clayey or loamy subsoil; formed in material weathered from greenstone

7 Manteo-Nason-Tatum: Shallow and deep, somewhat excessively drained and well drained soils that have a loamy or clayey subsoil; formed in material weathered from sericite schist

8 Totier-Klinesville-Rapidan: Deep and shallow, well drained soils that have a clayey or loamy subsoil; formed in material weathered from red shale and conglomerate

Compiled 1982

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

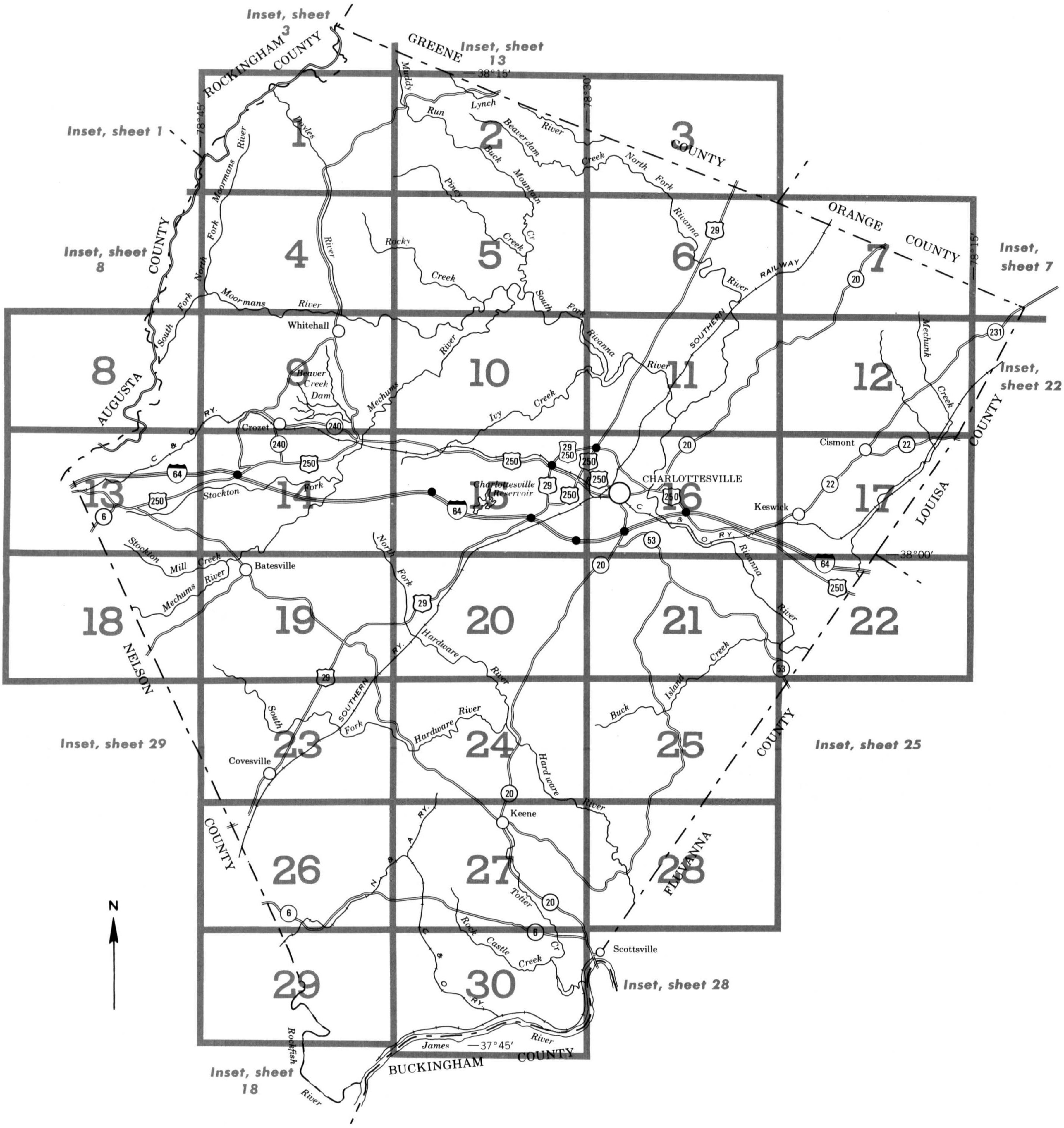
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
THE VIRGINIA POLYTECHNIC INSTITUTE AND
STATE UNIVERSITY

GENERAL SOIL MAP
ALBEMARLE COUNTY, VIRGINIA

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km



INDEX TO MAP SHEETS
ALBEMARLE COUNTY, VIRGINIA

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

ALBEMARLE COUNTY, VIRGINIA

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

SOIL LEGEND

Publication symbols consist of numbers or a combination of numbers and letters (e.g., 6, 34C, or 75D3). The initial numbers represent the kind of soil. A capital letter of A, B, C, D, or E, following these numbers indicates the class of slope. Symbols without a slope letter are for nearly level soils, soils named for higher categories, or for miscellaneous areas. The number 3 following a capital letter in the symbol indicates the soil is severely eroded.

SYMBOL	NAME
1B	Abell silt loam, 2 to 7 percent slopes
2B	Albemarle fine sandy loam, 2 to 7 percent slopes
2C	Albemarle fine sandy loam, 7 to 15 percent slopes
2D	Albemarle fine sandy loam, 15 to 25 percent slopes
3C	Albemarle very stony fine sandy loam, 7 to 15 percent slopes
3D	Albemarle very stony fine sandy loam, 15 to 25 percent slopes
3E	Albemarle very stony fine sandy loam, 25 to 45 percent slopes
4B	Ashe loam, 2 to 7 percent slopes
4C	Ashe loam, 7 to 15 percent slopes
4D	Ashe loam, 15 to 25 percent slopes
4E	Ashe loam, 25 to 45 percent slopes
5B	Belvoir loam, 2 to 7 percent slopes
6	Bermudian silt loam
7B	Braddock loam, 2 to 7 percent slopes
7C	Braddock loam, 7 to 15 percent slopes
7D	Braddock loam, 15 to 25 percent slopes
8C3	Braddock clay loam, 7 to 15 percent slopes, severely eroded
9B	Braddock very stony loam, 2 to 7 percent slopes
9C	Braddock very stony loam, 7 to 15 percent slopes
9D	Braddock very stony loam, 15 to 25 percent slopes
10	Buncombe loamy sand
11D	Cataska-Hartleton very stony loams, 15 to 25 percent slopes
11E	Cataska-Hartleton very stony loams, 25 to 60 percent slopes
12C	Catoctin silt loam, 7 to 15 percent slopes
12D	Catoctin silt loam, 15 to 25 percent slopes
12E	Catoctin silt loam, 25 to 45 percent slopes
13C	Catoctin very stony silt loam, 7 to 15 percent slopes
13D	Catoctin very stony silt loam, 15 to 25 percent slopes
13E	Catoctin very stony silt loam, 25 to 45 percent slopes
14B	Chester loam, 2 to 7 percent slopes
14C	Chester loam, 7 to 15 percent slopes
14D	Chester loam, 15 to 25 percent slopes
14E	Chester loam, 25 to 45 percent slopes
15C	Chester very stony loam, 7 to 15 percent slopes
15D	Chester very stony loam, 15 to 25 percent slopes
15E	Chester very stony loam, 25 to 45 percent slopes
16	Chewacla silt loam
17	Craigsville loam
18B	Creedmoor loam, 2 to 7 percent slopes
19B	Cullen loam, 2 to 7 percent slopes
19C	Cullen loam, 7 to 15 percent slopes
19D	Cullen loam, 15 to 25 percent slopes
20B3	Cullen clay loam, 2 to 7 percent slopes, severely eroded
20C3	Cullen clay loam, 7 to 15 percent slopes, severely eroded
20D3	Cullen clay loam, 15 to 25 percent slopes, severely eroded
21B	Culpeper fine sandy loam, 2 to 7 percent slopes
21C	Culpeper fine sandy loam, 7 to 15 percent slopes
21D	Culpeper fine sandy loam, 15 to 25 percent slopes
22C3	Culpeper clay loam, 7 to 15 percent slopes, severely eroded
23B	Davidson clay loam, 2 to 7 percent slopes
23C	Davidson clay loam, 7 to 15 percent slopes
24B	Dogue silt loam, 2 to 7 percent slopes
25B	Dyke silt loam, 2 to 7 percent slopes
25C	Dyke silt loam, 7 to 15 percent slopes
26B3	Dyke clay loam, 2 to 7 percent slopes, severely eroded
26C3	Dyke clay loam, 7 to 15 percent slopes, severely eroded
26D3	Dyke clay loam, 15 to 25 percent slopes, severely eroded
27B	Elioak loam, 2 to 7 percent slopes
27C	Elioak loam, 7 to 15 percent slopes
27D	Elioak loam, 15 to 25 percent slopes
28C3	Elioak clay loam, 7 to 15 percent slopes, severely eroded
28D3	Elioak clay loam, 15 to 25 percent slopes, severely eroded
29B	Fauquier silt loam, 2 to 7 percent slopes
29C	Fauquier silt loam, 7 to 15 percent slopes
29D	Fauquier silt loam, 15 to 25 percent slopes
29E	Fauquier silt loam, 25 to 45 percent slopes
30C3	Fauquier siltly clay loam, 7 to 15 percent slopes, severely eroded
30D3	Fauquier silty clay loam, 15 to 25 percent slopes, severely eroded
31C	Fauquier very stony silt loam, 7 to 15 percent slopes
31D	Fauquier very stony silt loam, 15 to 25 percent slopes
32B	Fluvanna silt loam, 2 to 7 percent slopes
32C	Fluvanna silt loam, 7 to 15 percent slopes
33C	Fluvanna very stony silt loam, 7 to 15 percent slopes
34B	Glenelg loam, 2 to 7 percent slopes
34C	Glenelg loam, 7 to 15 percent slopes
34D	Glenelg loam, 15 to 25 percent slopes
34E	Glenelg loam, 25 to 45 percent slopes
35C	Hartleton-Cataska very stony loams, 7 to 15 percent slopes
36B	Hayesville loam, 2 to 7 percent slopes
36C	Hayesville loam, 7 to 15 percent slopes
36D	Hayesville loam, 15 to 25 percent slopes
36E	Hayesville loam, 25 to 45 percent slopes
37B3	Hayesville clay loam, 2 to 7 percent slopes, severely eroded
37C3	Hayesville clay loam, 7 to 15 percent slopes, severely eroded
37D3	Hayesville clay loam, 15 to 25 percent slopes, severely eroded
37E3	Hayesville clay loam, 25 to 45 percent slopes, severely eroded
38C	Hayesville very stony loam, 7 to 15 percent slopes
38D	Hayesville very stony loam, 15 to 25 percent slopes
38E	Hayesville very stony loam, 25 to 45 percent slopes
39C	Hazel loam, 7 to 15 percent slopes
39D	Hazel loam, 15 to 25 percent slopes
39E	Hazel loam, 25 to 45 percent slopes
40D	Hazel very stony loam, 15 to 25 percent slopes
40E	Hazel very stony loam, 25 to 45 percent slopes
41B	Hiwassee loam, 2 to 7 percent slopes
41C	Hiwassee loam, 7 to 15 percent slopes
42B3	Hiwassee clay loam, 2 to 7 percent slopes, severely eroded
42C3	Hiwassee clay loam, 7 to 15 percent slopes, severely eroded
42D3	Hiwassee clay loam, 15 to 25 percent slopes, severely eroded
43B	Klinesville channery silt loam, 2 to 7 percent slopes
43C	Klinesville channery silt loam, 7 to 15 percent slopes
43D	Klinesville channery silt loam, 15 to 25 percent slopes
43E	Klinesville channery silt loam, 25 to 45 percent slopes
44C	Lew very stony silt loam, 7 to 15 percent slopes
44D	Lew very stony silt loam, 15 to 25 percent slopes
45C	Lew extremely stony silt loam, 7 to 15 percent slopes
45D	Lew extremely stony silt loam, 15 to 25 percent slopes
46B	Lignum silt loam, 2 to 7 percent slopes
47C	Louisburg sandy loam, 7 to 15 percent slopes
47D	Louisburg sandy loam, 15 to 25 percent slopes
47E	Louisburg sandy loam, 25 to 45 percent slopes
48D	Louisburg very stony sandy loam, 15 to 25 percent slopes
48E	Louisburg very stony sandy loam, 25 to 45 percent slopes
49B	Manassas silt loam, 2 to 7 percent slopes
50D	Manor loam, 15 to 25 percent slopes
50E	Manor loam, 25 to 45 percent slopes
51B	Manteo channery silt loam, 2 to 7 percent slopes
51C	Manteo channery silt loam, 7 to 15 percent slopes
51D	Manteo channery silt loam, 15 to 25 percent slopes
51E	Manteo channery silt loam, 25 to 45 percent slopes
52D	Manteo very channery silt loam, 15 to 25 percent slopes
52E	Manteo very channery silt loam, 25 to 45 percent slopes
53B	Masada loam, 2 to 7 percent slopes
53C	Masada loam, 7 to 15 percent slopes
54B	Mayodan loam, 2 to 7 percent slopes
54C	Mayodan loam, 7 to 15 percent slopes
55B	McQueen loam, 2 to 7 percent slopes
56B	Meadowville loam, 2 to 7 percent slopes
56C	Meadowville loam, 7 to 15 percent slopes
57B	Mount Lucas silt loam, 2 to 7 percent slopes
58B	Myersville silt loam, 2 to 7 percent slopes
58C	Myersville silt loam, 7 to 15 percent slopes
58D	Myersville silt loam, 15 to 25 percent slopes
58E	Myersville silt loam, 25 to 45 percent slopes
59C	Myersville very stony silt loam, 7 to 15 percent slopes
59D	Myersville very stony silt loam, 15 to 25 percent slopes
59E	Myersville very stony silt loam, 25 to 45 percent slopes
60C	Myersville-Catoctin very stony silt loams, 7 to 15 percent slopes
60D	Myersville-Catoctin very stony silt loams, 15 to 25 percent slopes
60E	Myersville-Catoctin very stony silt loams, 25 to 60 percent slopes
61D	Myersville-Rock outcrop complex, 15 to 25 percent slopes
61E	Myersville-Rock outcrop complex, 25 to 45 percent slopes
62B	Nason silt loam, 2 to 7 percent slopes
62C	Nason silt loam, 7 to 15 percent slopes
62D	Nason silt loam, 15 to 25 percent slopes
63B	Orange silt loam, 2 to 7 percent slopes
64B	Orange very stony silt loam, 2 to 7 percent slopes
65B	Pacolet sandy loam, 2 to 7 percent slopes
65C	Pacolet sandy loam, 7 to 15 percent slopes
66C	Parker very stony loam, 7 to 15 percent slopes
66D	Parker very stony loam, 15 to 25 percent slopes
66E	Parker very stony loam, 25 to 45 percent slopes
67D	Parker extremely stony loam, 15 to 25 percent slopes
67E	Parker extremely stony loam, 25 to 60 percent slopes
68B	Penn silt loam, 2 to 7 percent slopes
68C	Penn silt loam, 7 to 15 percent slopes
68D	Penn silt loam, 15 to 25 percent slopes
69	Pits, quarry
70C	Porters very stony loam, 7 to 15 percent slopes
70D	Porters very stony loam, 15 to 25 percent slopes
70E	Porters very stony loam, 25 to 45 percent slopes
71B	Rabun clay loam, 2 to 7 percent slopes
71C	Rabun clay loam, 7 to 15 percent slopes
71D	Rabun clay loam, 15 to 25 percent slopes
71E	Rabun clay loam, 25 to 45 percent slopes
72B3	Rabun clay, 2 to 7 percent slopes, severely eroded
72C3	Rabun clay, 7 to 15 percent slopes, severely eroded
72D3	Rabun clay, 15 to 25 percent slopes, severely eroded
72E3	Rabun clay, 25 to 45 percent slopes, severely eroded
73C	Rabun very stony clay loam, 7 to 15 percent slopes
73D	Rabun very stony clay loam, 15 to 25 percent slopes
73E	Rabun very stony clay loam, 25 to 45 percent slopes
74B	Rapidan silt loam, 2 to 7 percent slopes
74C	Rapidan silt loam, 7 to 15 percent slopes
74D	Rapidan silt loam, 15 to 25 percent slopes
75C3	Rapidan silty clay loam, 7 to 15 percent slopes, severely eroded
75D3	Rapidan silty clay loam, 15 to 25 percent slopes, severely eroded
76	Riverview loam
77	Riverview-Chewacla complex
78	Rowland silt loam
79B	Starr silt loam, 2 to 7 percent slopes
80B	Tatum silt loam, 2 to 7 percent slopes
80C	Tatum silt loam, 7 to 15 percent slopes
81B	Thurmont loam, 2 to 7 percent slopes
81C	Thurmont loam, 7 to 15 percent slopes
81D	Thurmont loam, 15 to 25 percent slopes
82C	Thurmont very stony loam, 7 to 15 percent slopes
82D	Thurmont very stony loam, 15 to 25 percent slopes
83	Toccoa fine sandy loam
84B	Totier silt loam, 2 to 7 percent slopes
84C	Totier silt loam, 7 to 15 percent slopes
85C3	Totier silty clay loam, 7 to 15 percent slopes, severely eroded
86B	Turbeville loam, 2 to 7 percent slopes
86C	Turbeville loam, 7 to 15 percent slopes
87B	Tusquitee stony loam, 2 to 7 percent slopes
87C	Tusquitee stony loam, 7 to 15 percent slopes
87D	Tusquitee stony loam, 15 to 25 percent slopes
88	Udorthents, loamy
89B	Unison silt loam, 2 to 7 percent slopes
89C	Unison silt loam, 7 to 15 percent slopes
90B	Unison very stony silt loam, 2 to 7 percent slopes
90C	Unison very stony silt loam, 7 to 15 percent slopes
90D	Unison very stony silt loam, 15 to 25 percent slopes
91	Urban land
92	Wahee silt loam
93C	Watt channery silt loam, 7 to 15 percent slopes
93D	Watt channery silt loam, 15 to 25 percent slopes
93E	Watt channery silt loam, 25 to 45 percent slopes
94B	Wedowee sandy loam, 2 to 7 percent slopes
94C	Wedowee sandy loam, 7 to 15 percent slopes
95	Wehadkee silt loam
96B	Worsham loam, 2 to 7 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES	
National, state or province	———— – –
County or parish	———— –
Minor civil division	— — —
Reservation (national forest or park, state forest or park, and large airport)	——·——
Land grant	——··——
Limit of soil survey (label)	————
Field sheet matchline & neatline	————
AD HOC BOUNDARY (label)	Hedley Airstrip
Small airport, airfield, park, oilfield, cemetery, or flood pool	FLOOD POOL LINE
STATE COORDINATE TICK	——┴——
LAND DIVISION CORNERS (sections and land grants)	└ ┴ ┼ ┬┴
ROADS	
Divided (median shown if scale permits)	═══
Other roads	———
Trail	– – – –
ROAD EMBLEM & DESIGNATIONS	
Interstate	21
Federal	173
State	28
County, farm or ranch	1283
RAILROAD	—┼—┼—┼—
POWER TRANSMISSION LINE (normally not shown)	·····•·····•·····
PIPE LINE (normally not shown)	├─┤├─┤├─┤
FENCE (normally not shown)	—×———×—
LEVEES	
Without road	❘❘❘❘❘❘❘❘❘❘❘❘
With road	❘❘❘❘❘❘❘❘❘❘❘❘
With railroad	❘❘❘┼❘❘❘┼❘❘❘
DAMS	
Large (to scale)	⬡
Medium or small	water w
PITS	
Gravel pit	⚒
Mine or quarry	⚒

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)	•
Church	⛪
School	🏫
Indian mound (label)	∩ Indian Mound
Located object (label)	○ Tower
Tank (label)	• Gas
Wells, oil or gas	♁
Windmill	✕
Kitchen midden	∩

WATER FEATURES

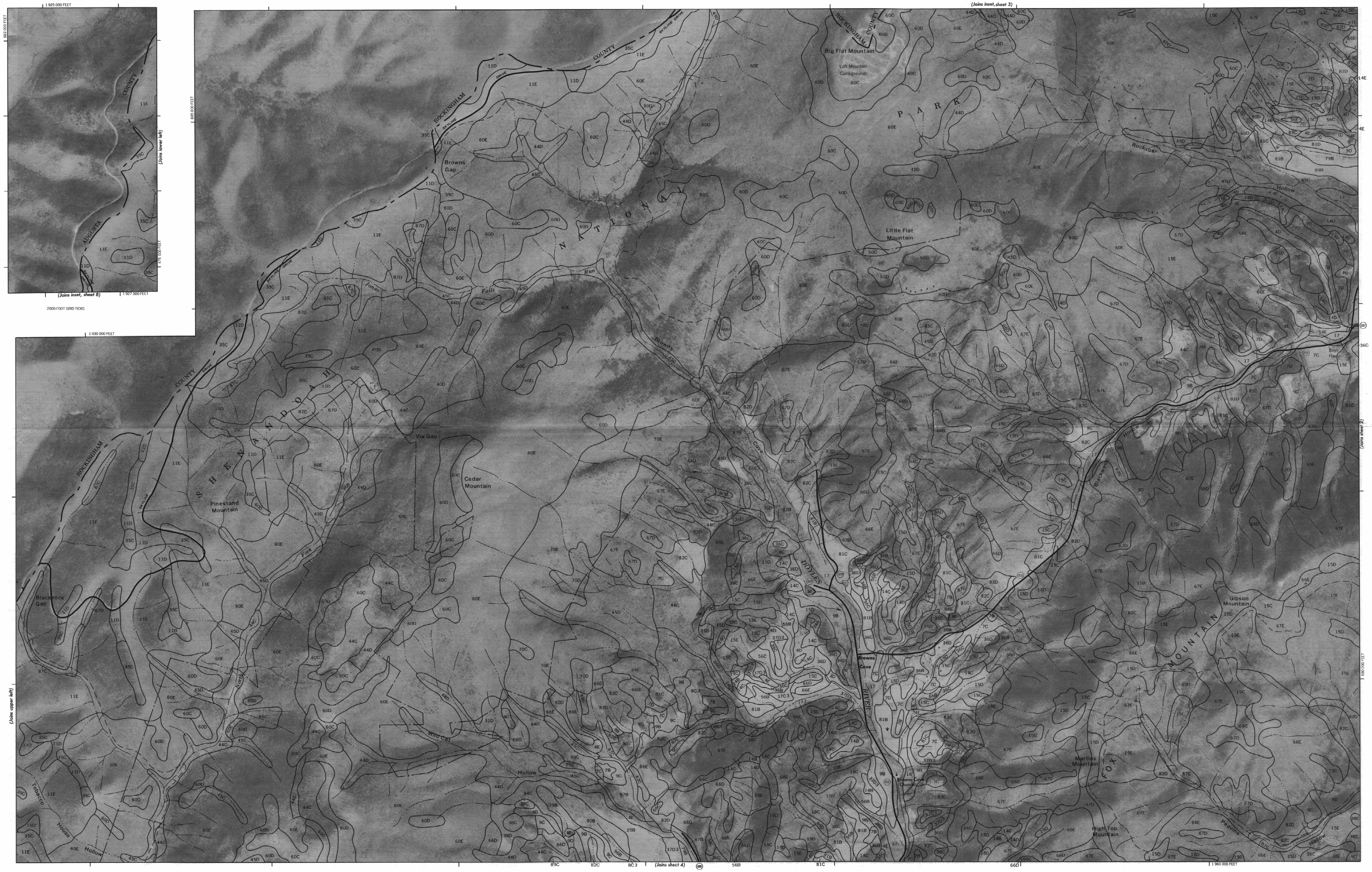
DRAINAGE	
Perennial, double line	≈≈≈
Perennial, single line	—·—·—
Intermittent	—···—
Drainage end	—···→
Canals or ditches	
Double-line (label)	CANAL
Drainage and/or irrigation	→·→
LAKES, PONDS AND RESERVOIRS	
Perennial	water w
Intermittent	int i
MISCELLANEOUS WATER FEATURES	
Marsh or swamp	ѱ
Spring	o~
Well, artesian	◆
Well, irrigation	-o-
Wet spot	↓

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS	7C 62B
ESCARPMENTS	
Bedrock (points down slope)	▾▾▾▾▾▾▾▾▾▾
Other than bedrock (points down slope)	'''''''''''''''''
SHORT STEEP SLOPE	············
GULLY	∿∿∿∿∿∿
DEPRESSION OR SINK	◊
SOIL SAMPLE SITE (normally not shown)	Ⓢ
MISCELLANEOUS	
Blowout	◡
Clay spot	※
Gravelly spot	∘°∘
Gumbo, slick or scabby spot (sodic)	ø
Dumps and other similar non soil areas	≋
Prominent hill or peak	☀
Rock outcrop (includes sandstone and shale)	▾
Saline spot	+
Sandy spot	∴
Severely eroded spot	≑
Slide or slip (tips point upslope)	)))
Stony spot, very stony spot	0 ꝏ

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 1

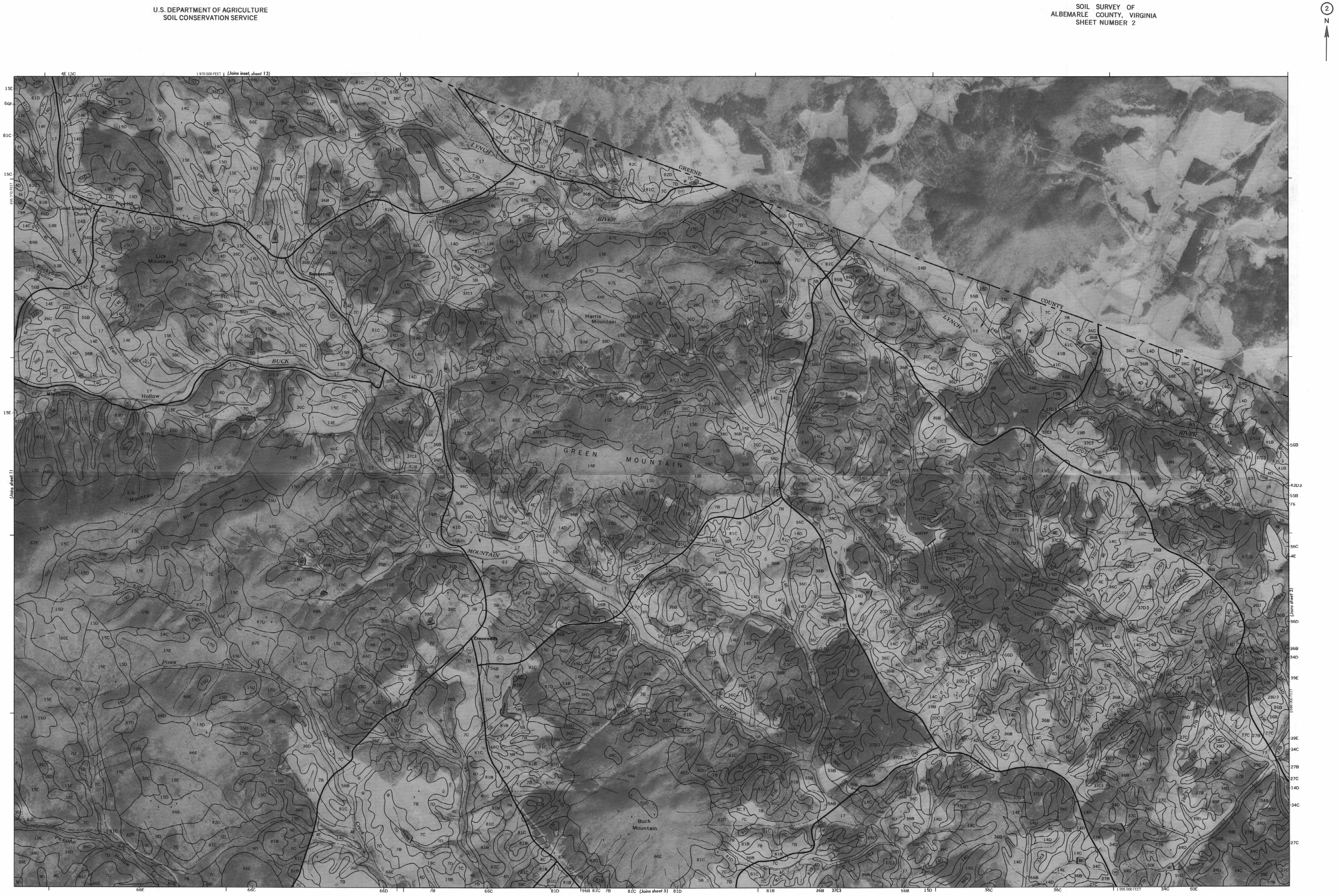


SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1977 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 2



SCALE 1:15 840

5000 Feet	4000	3000	2000	1000	0	1 Mile
1000 Meters	800	600	400	200	0	1 Kilometer

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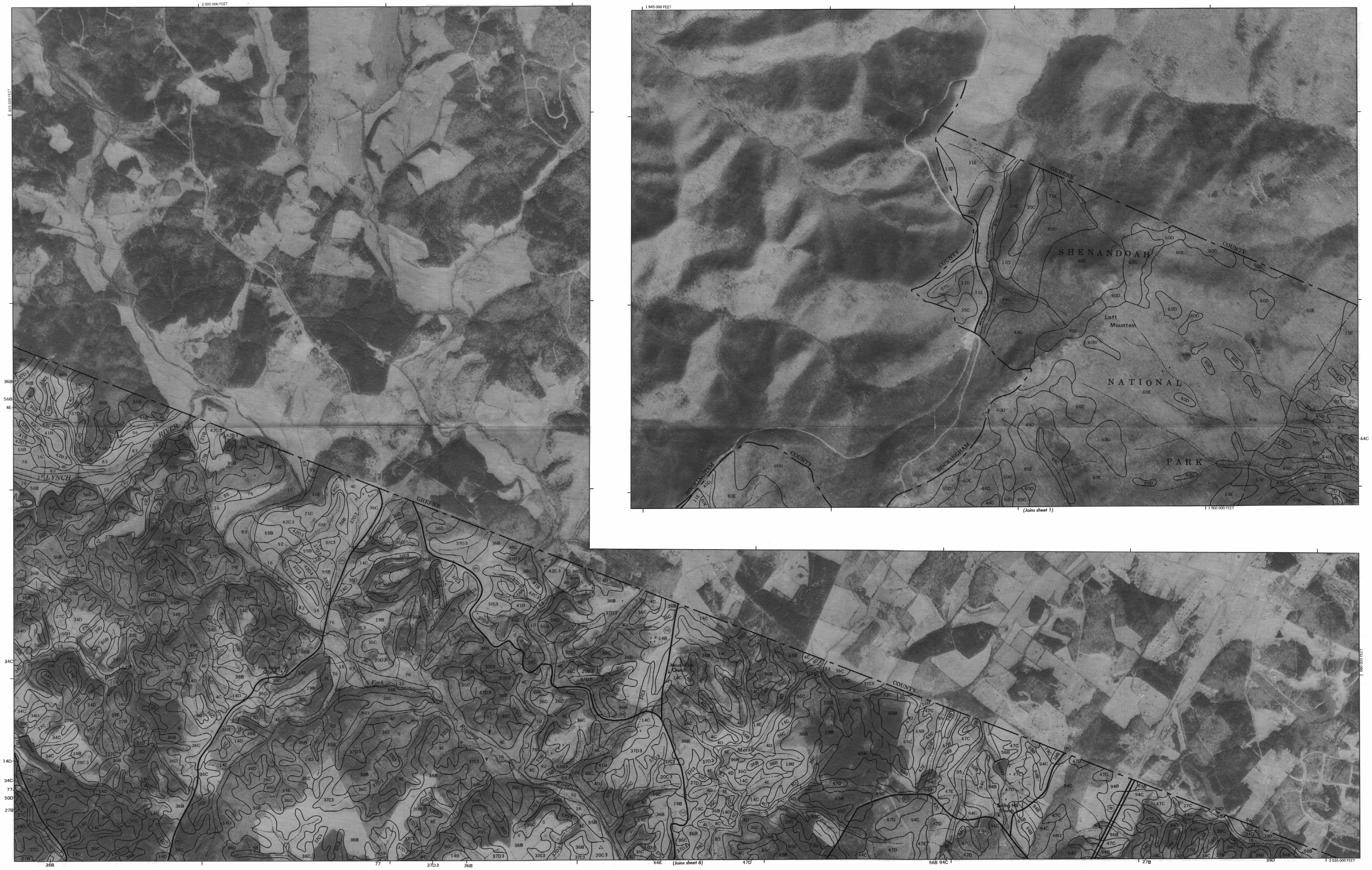
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 3

③
N



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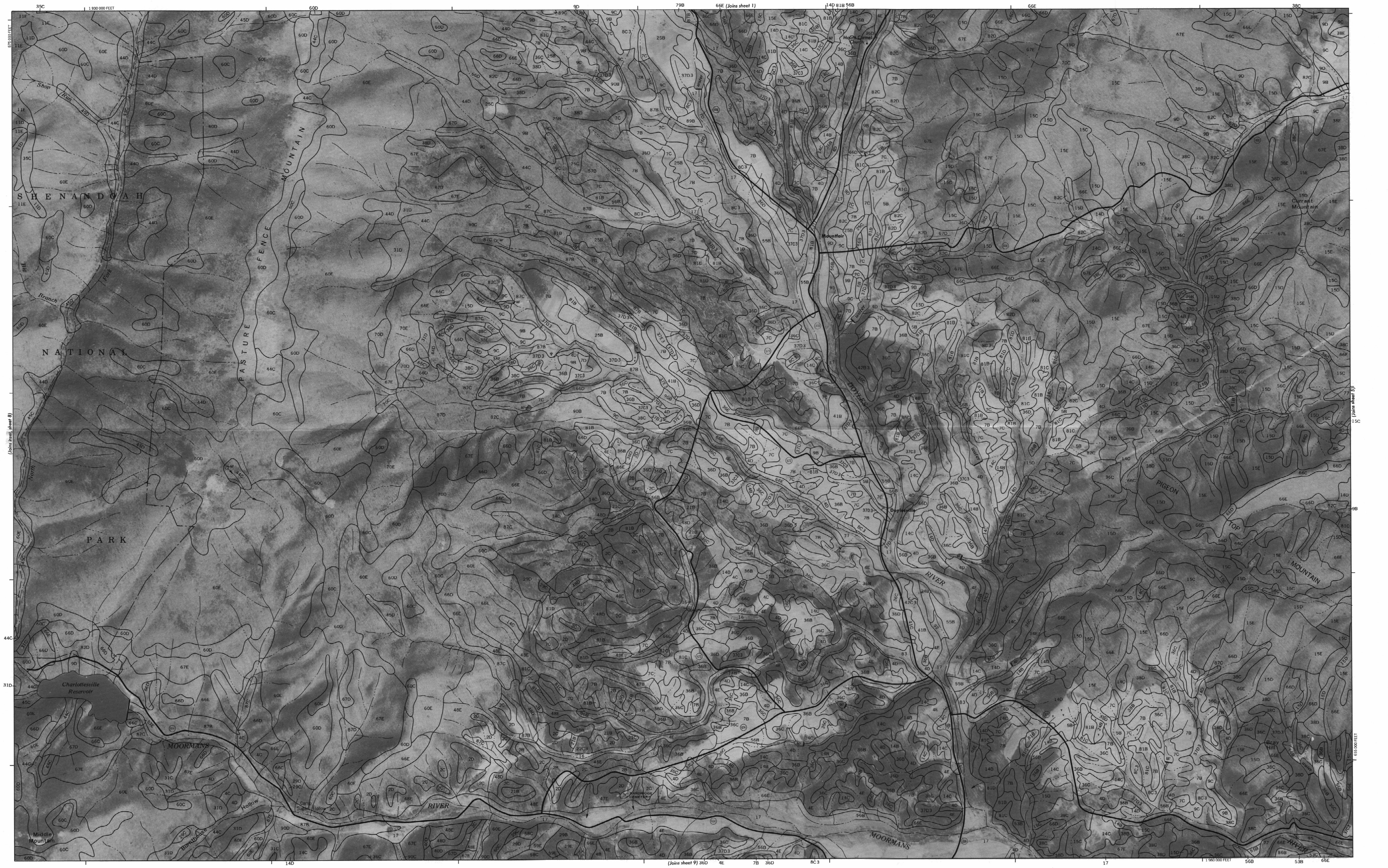
SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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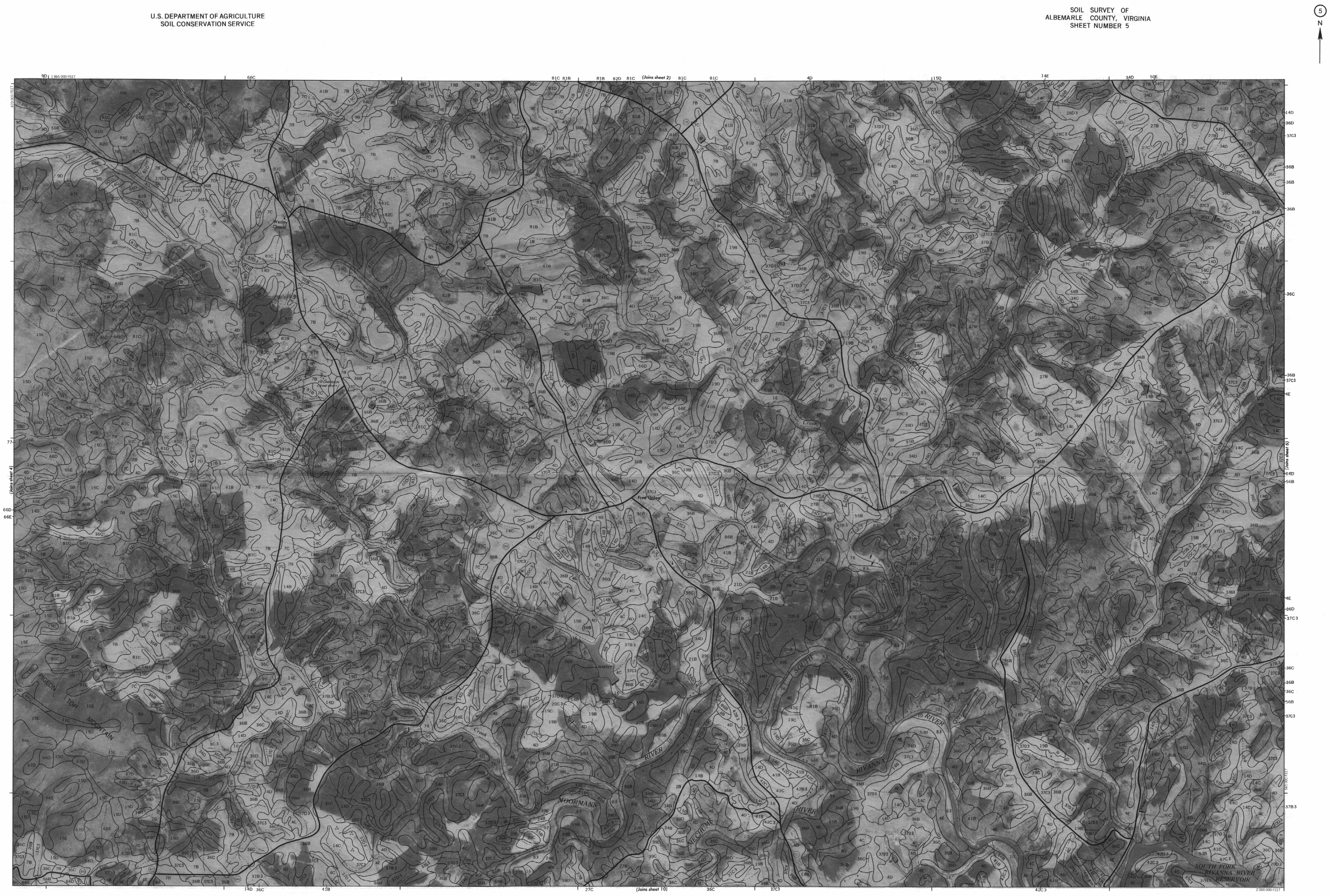
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 5



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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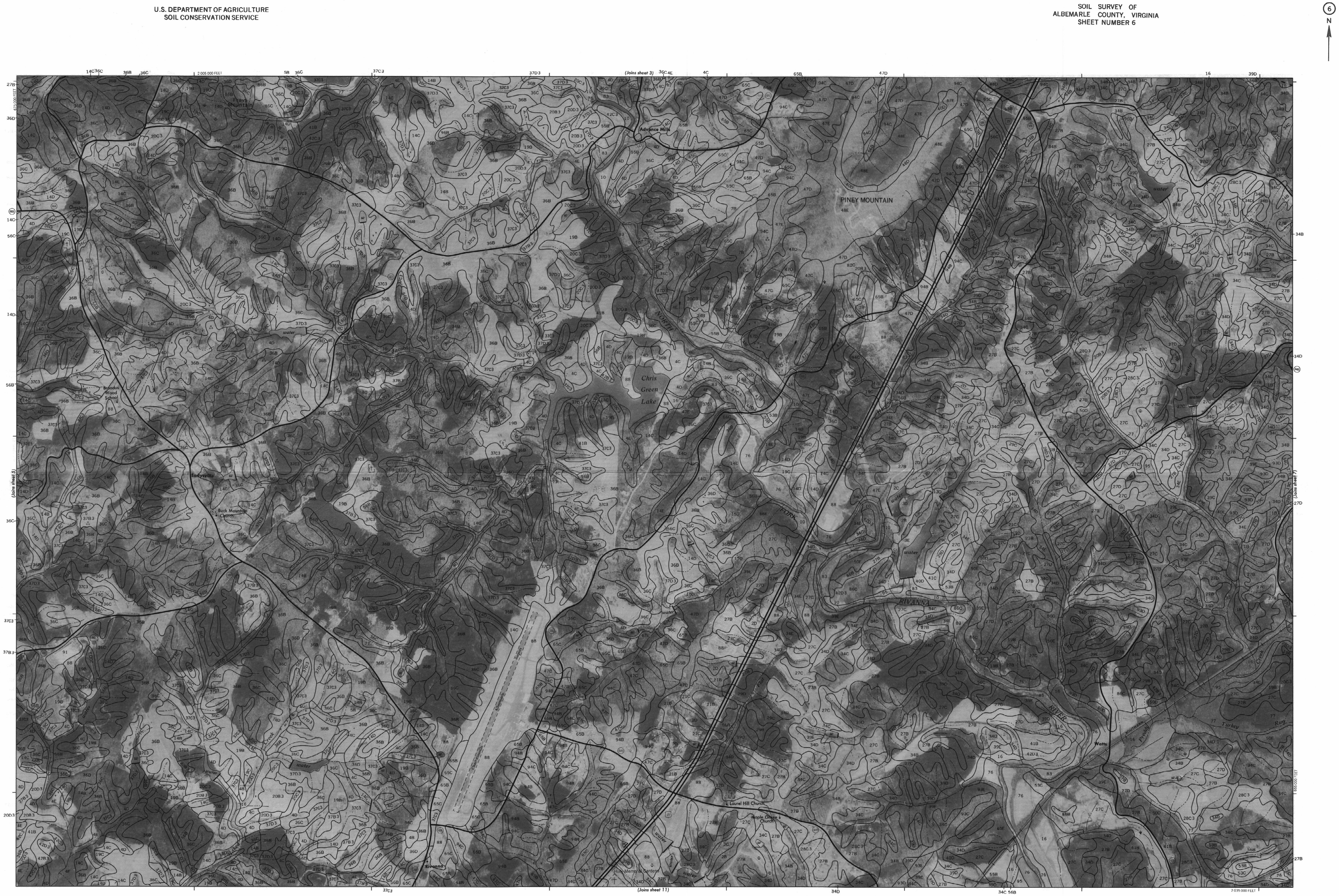
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 6



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1977 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

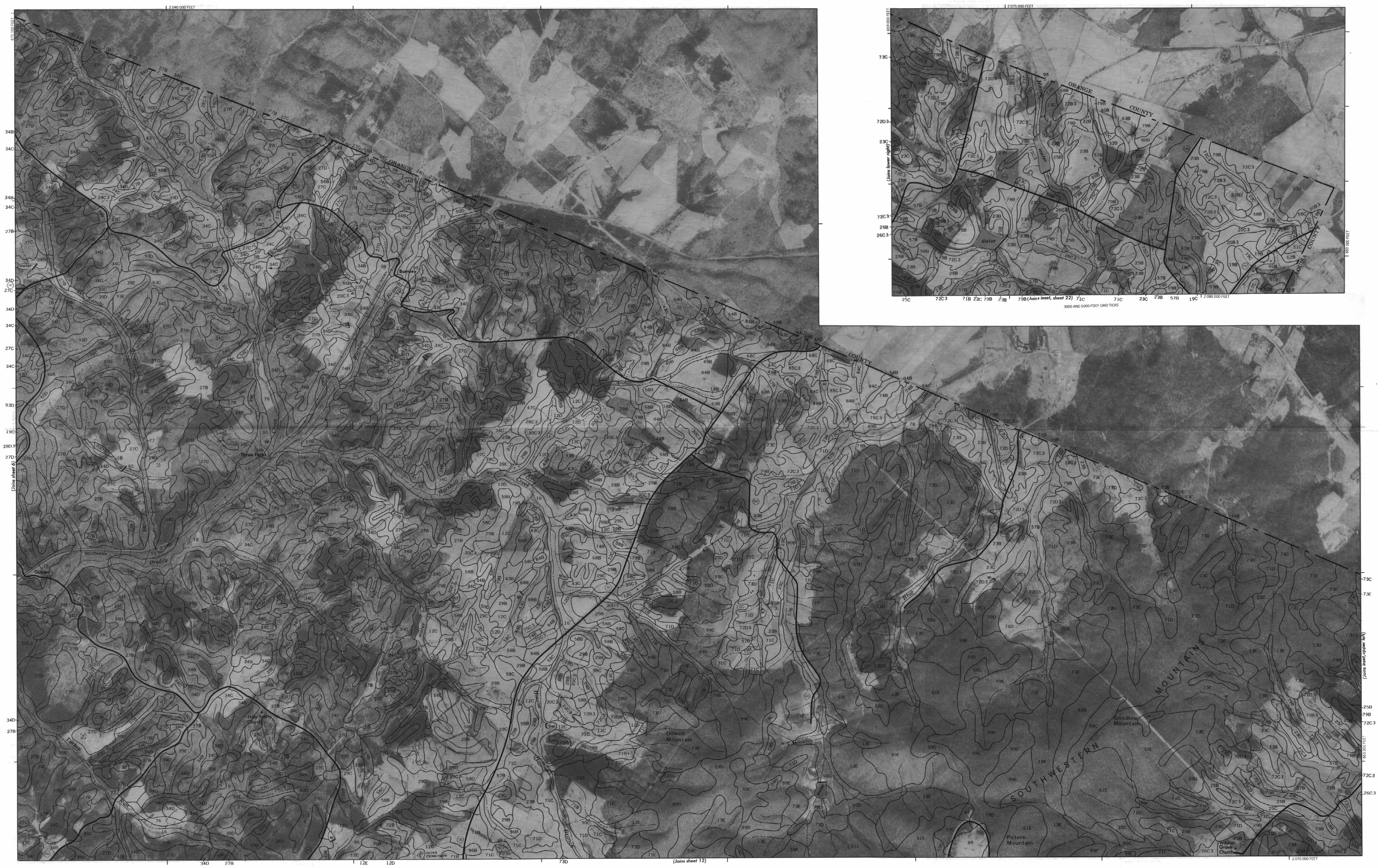
1000 Meters 800 600 400 200 0 1 Kilometer

ALBEMARLE COUNTY, VIRGINIA NO. 6

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 7

N



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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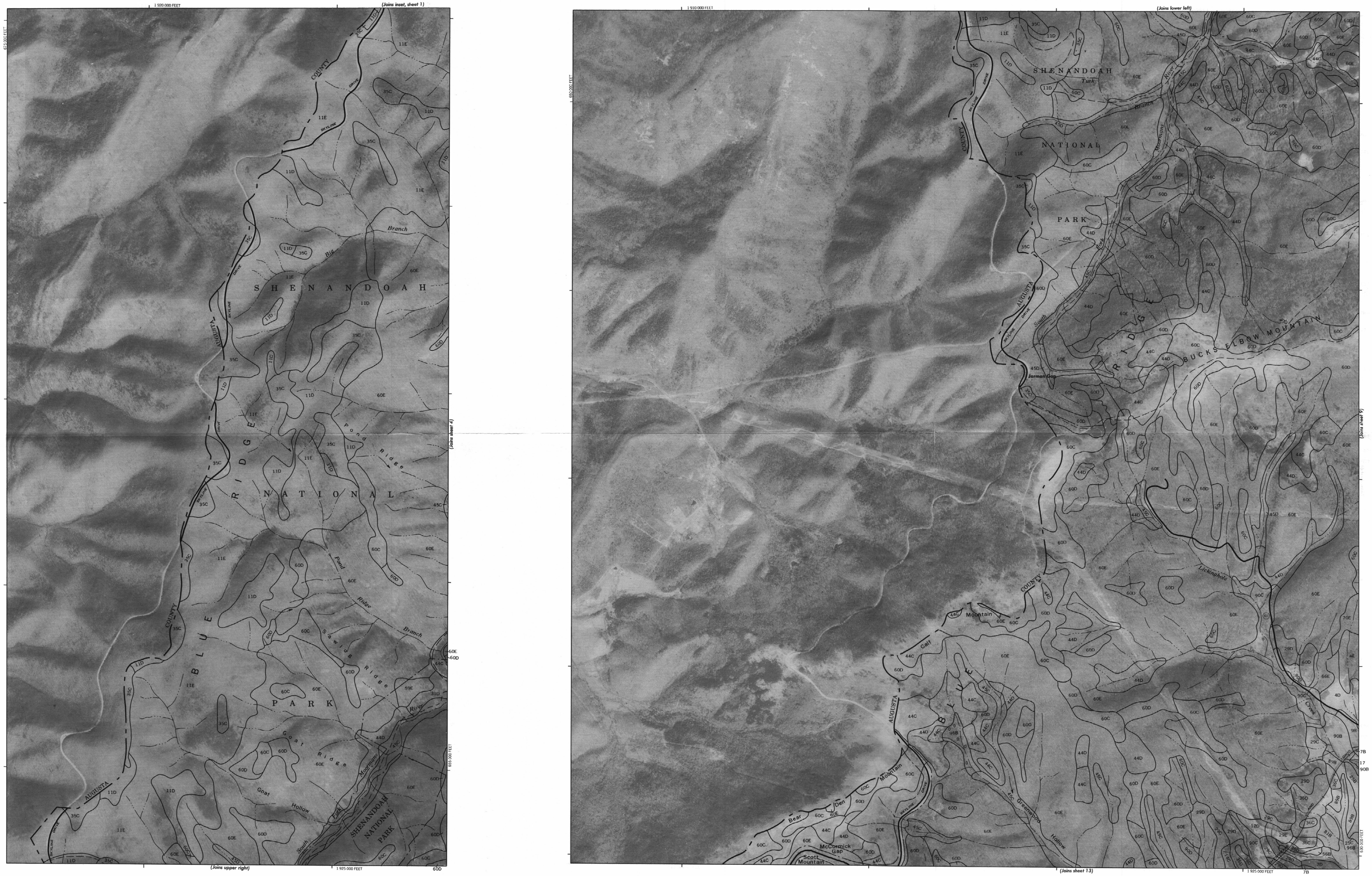
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 8

⑧
N



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

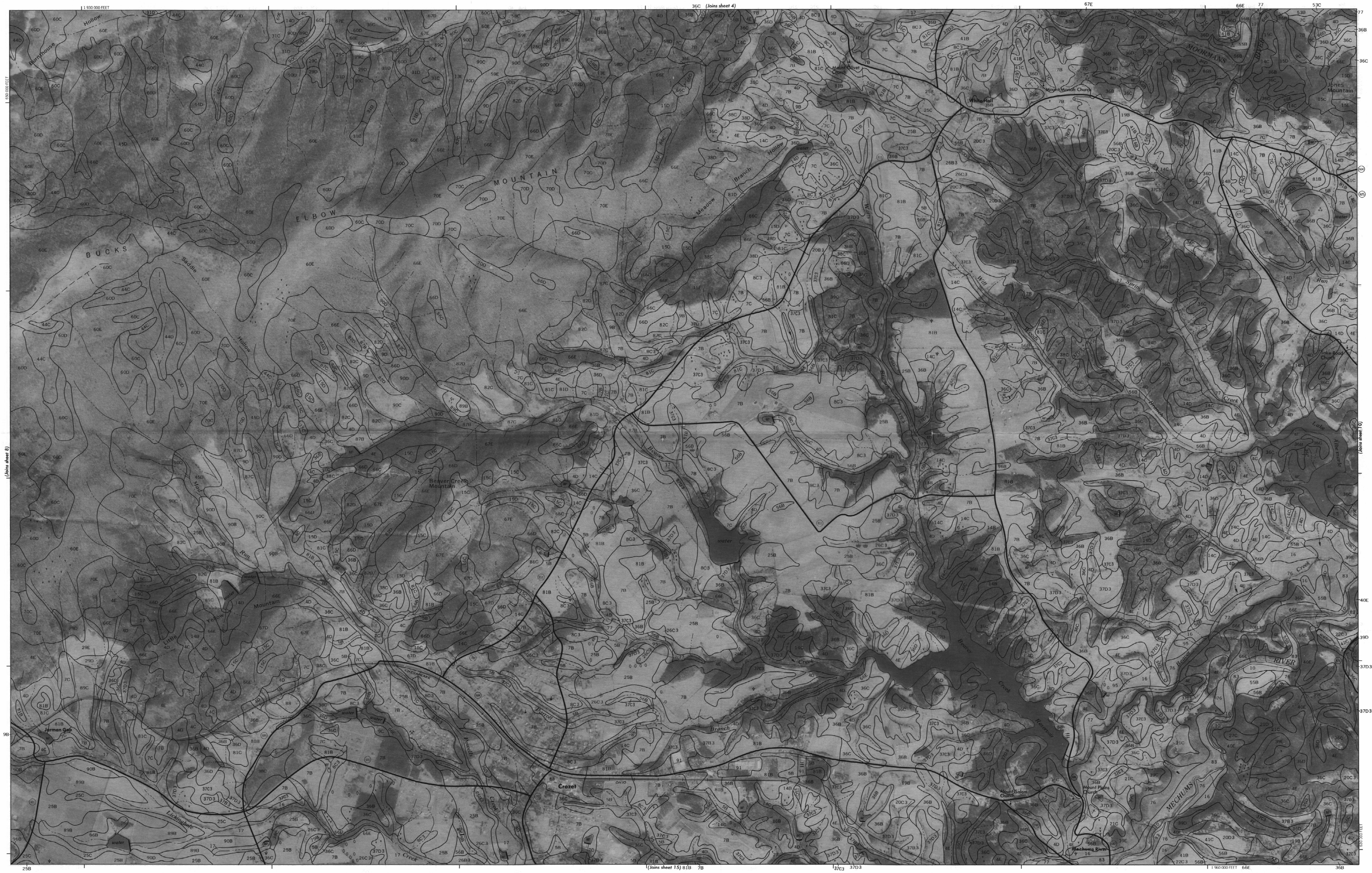
1000 Meters 800 600 400 200 0 1 Kilometer

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1977 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 9

⑨
N



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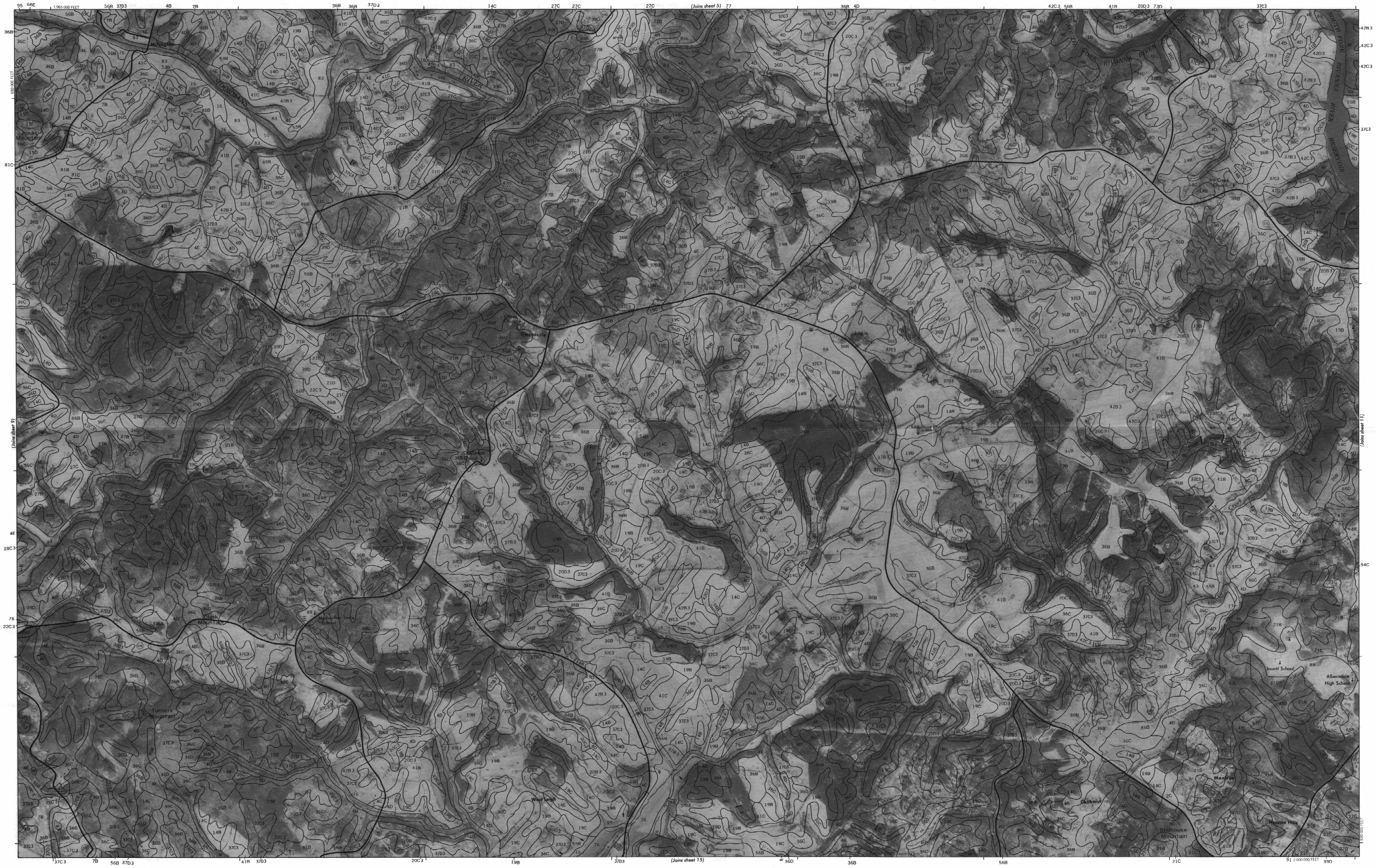
SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 10

(10)

N



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SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

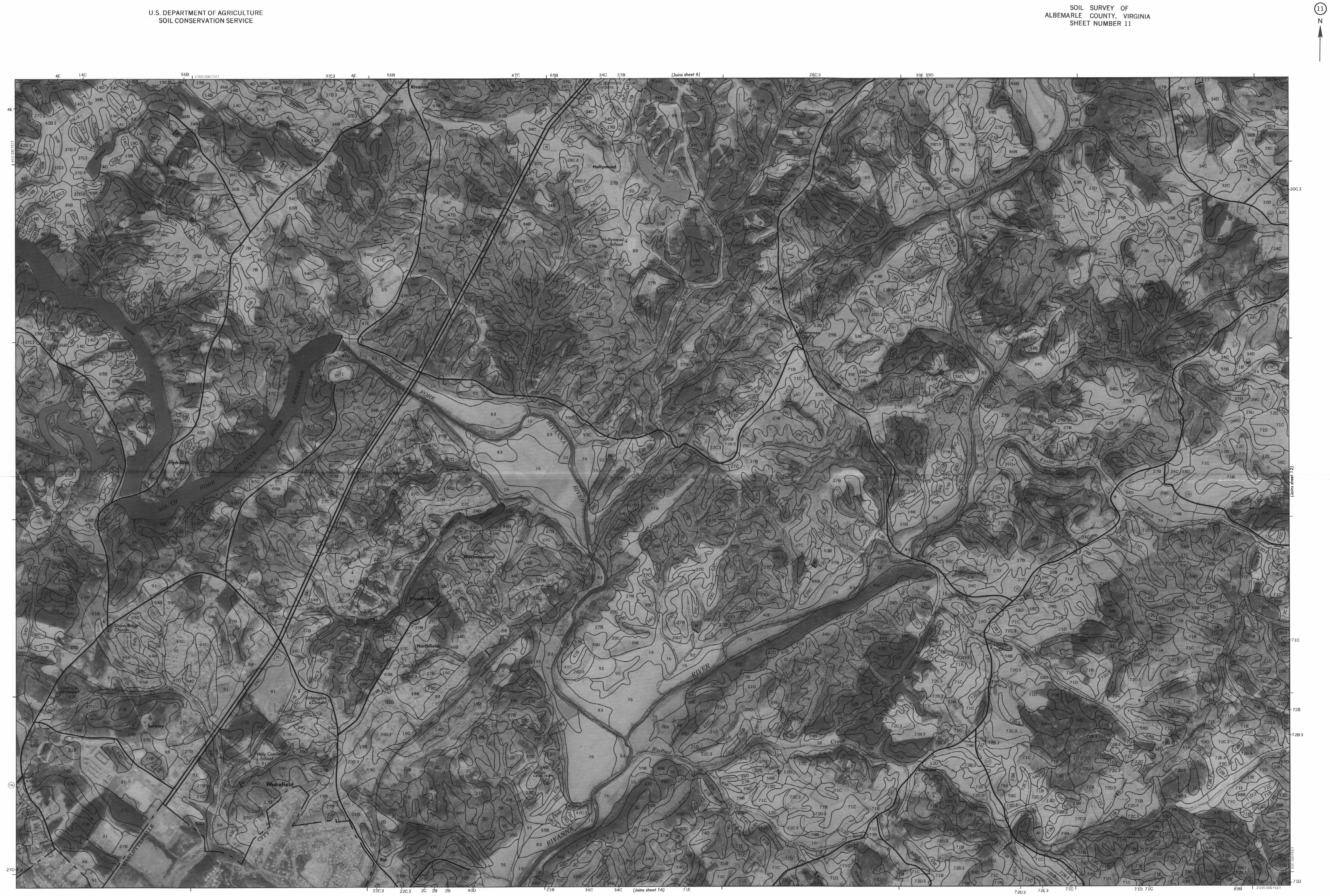
ALBEMARLE COUNTY, VIRGINIA NO. 10

SHEET NO. 10 OF 30

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 11

(11)



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1977 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

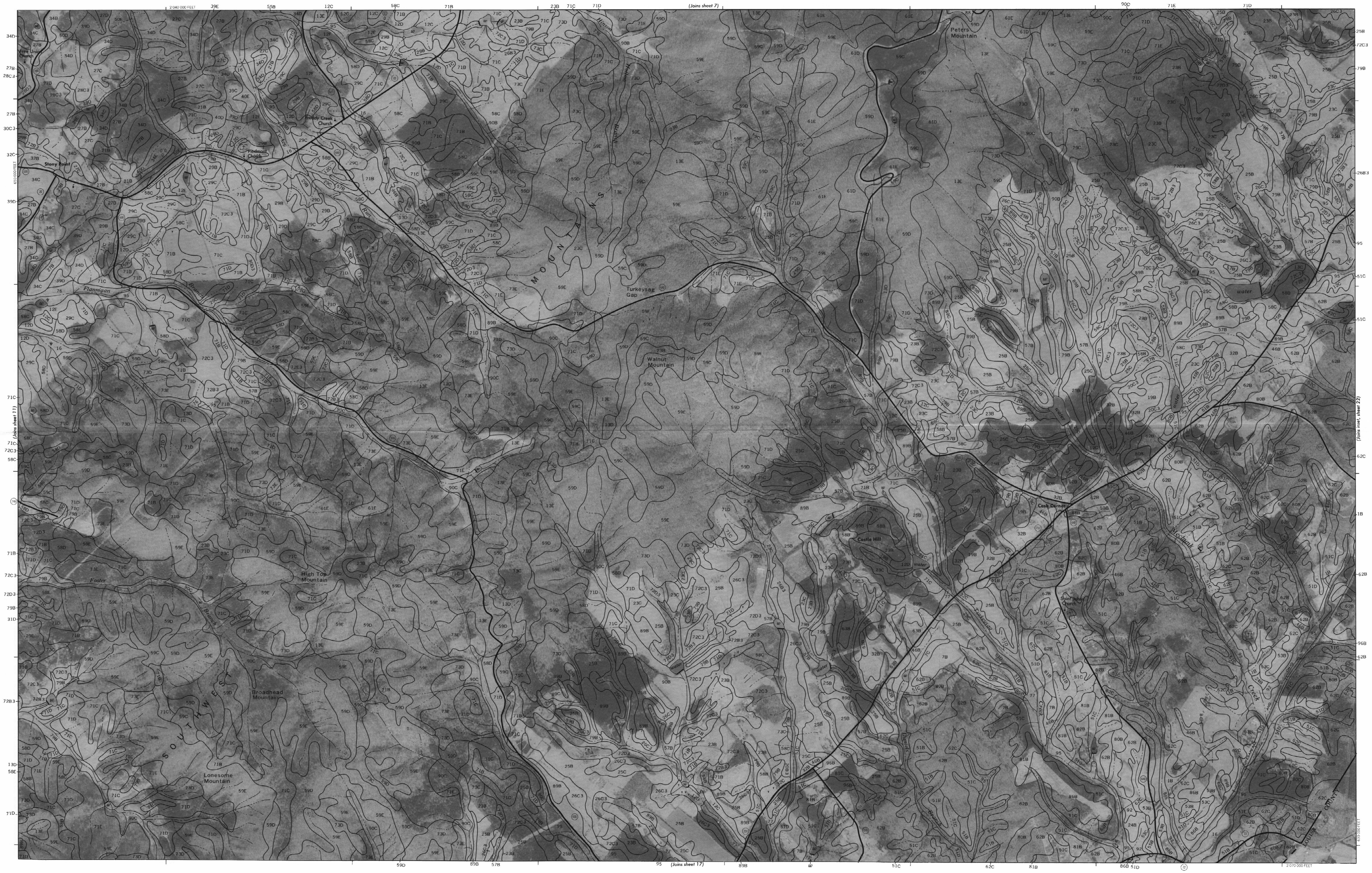
ALBEMARLE COUNTY, VIRGINIA NO. 11

SHEET NO.11 OF 30

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 12

⑫
N



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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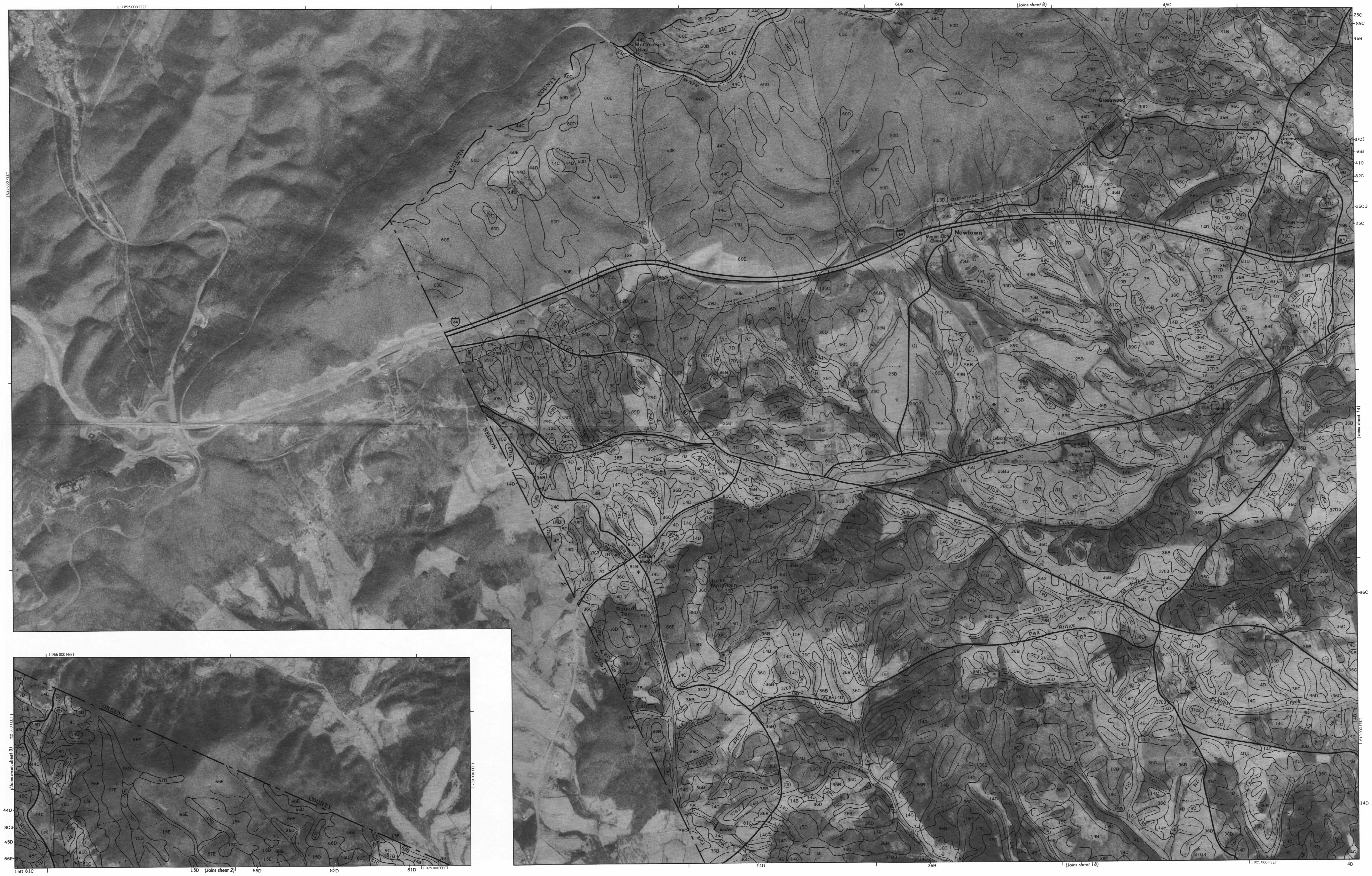
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 13

N



2000 AND 5000-FOOT GRID TICKS

SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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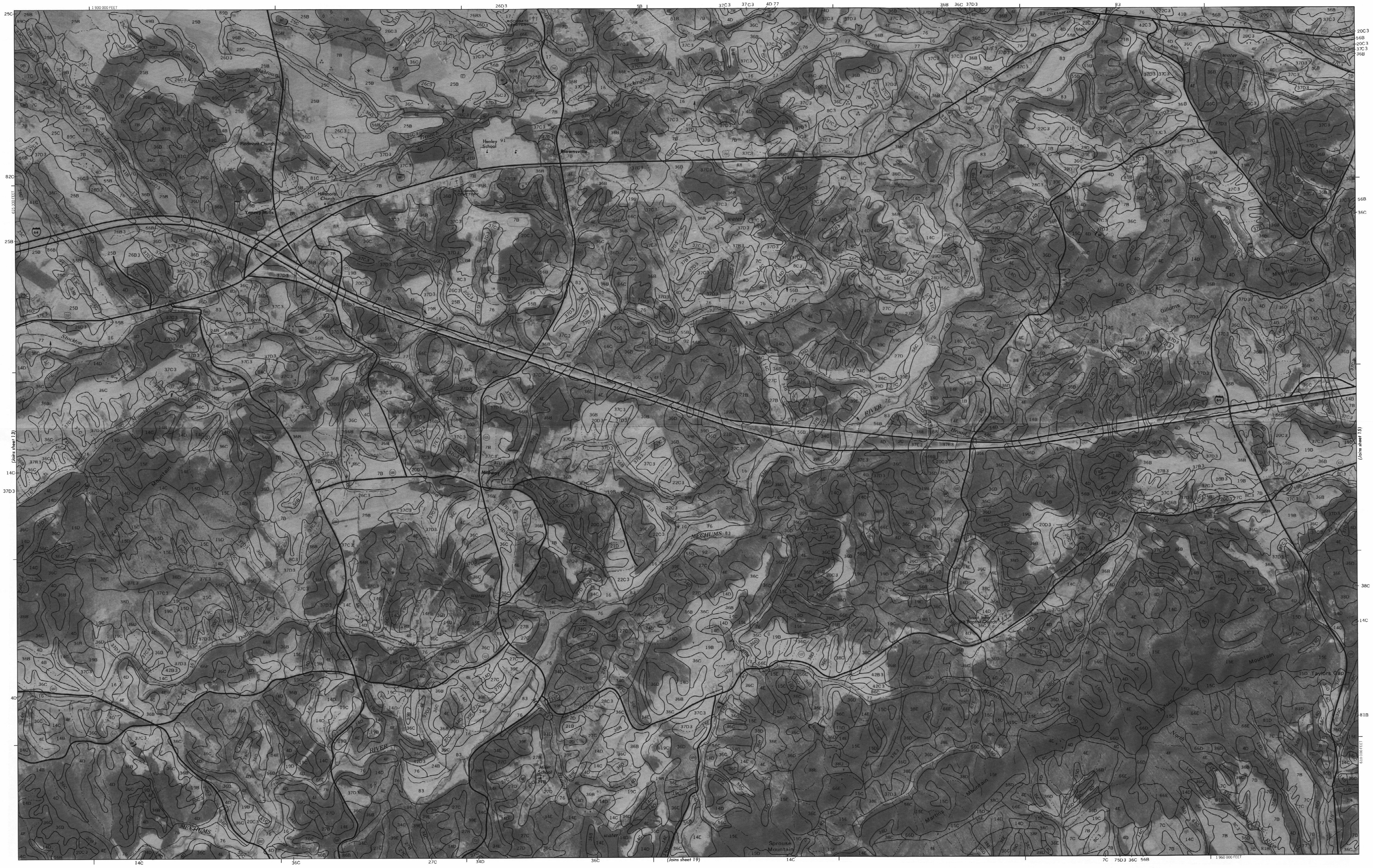
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 14

⑭
N



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SCALE 1:15 840

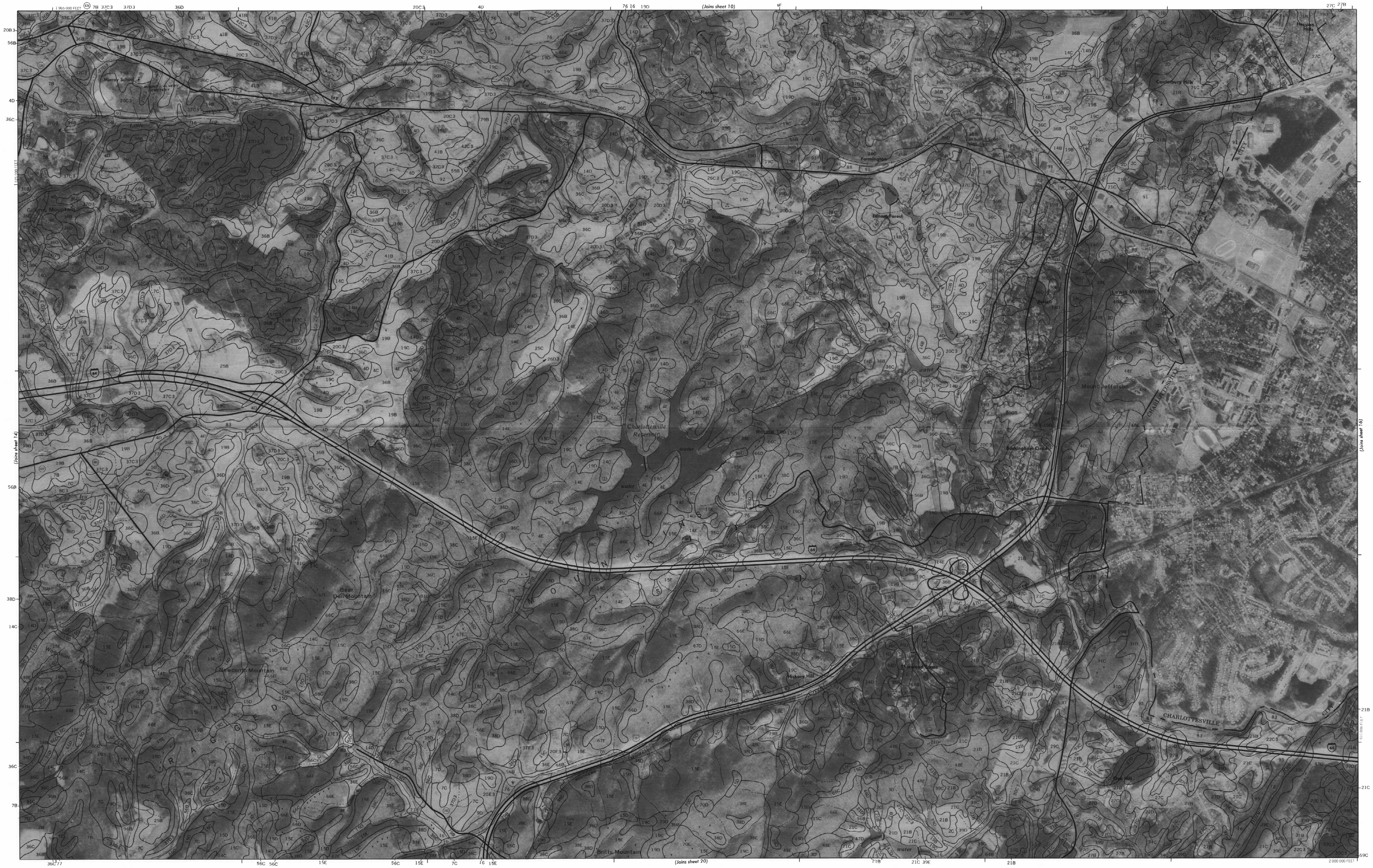
5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 15

⑮
N



SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

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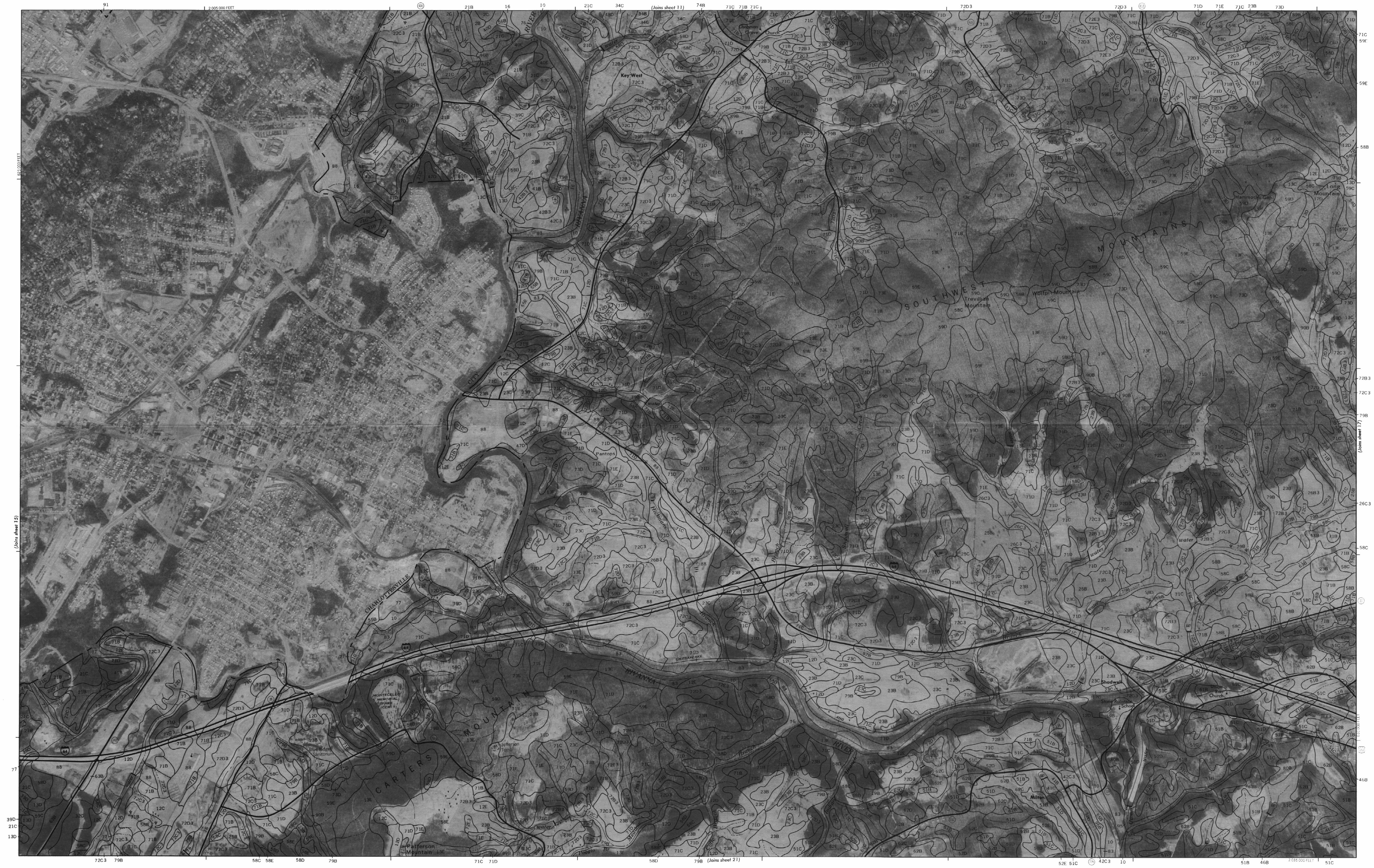
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 16

(16)

N



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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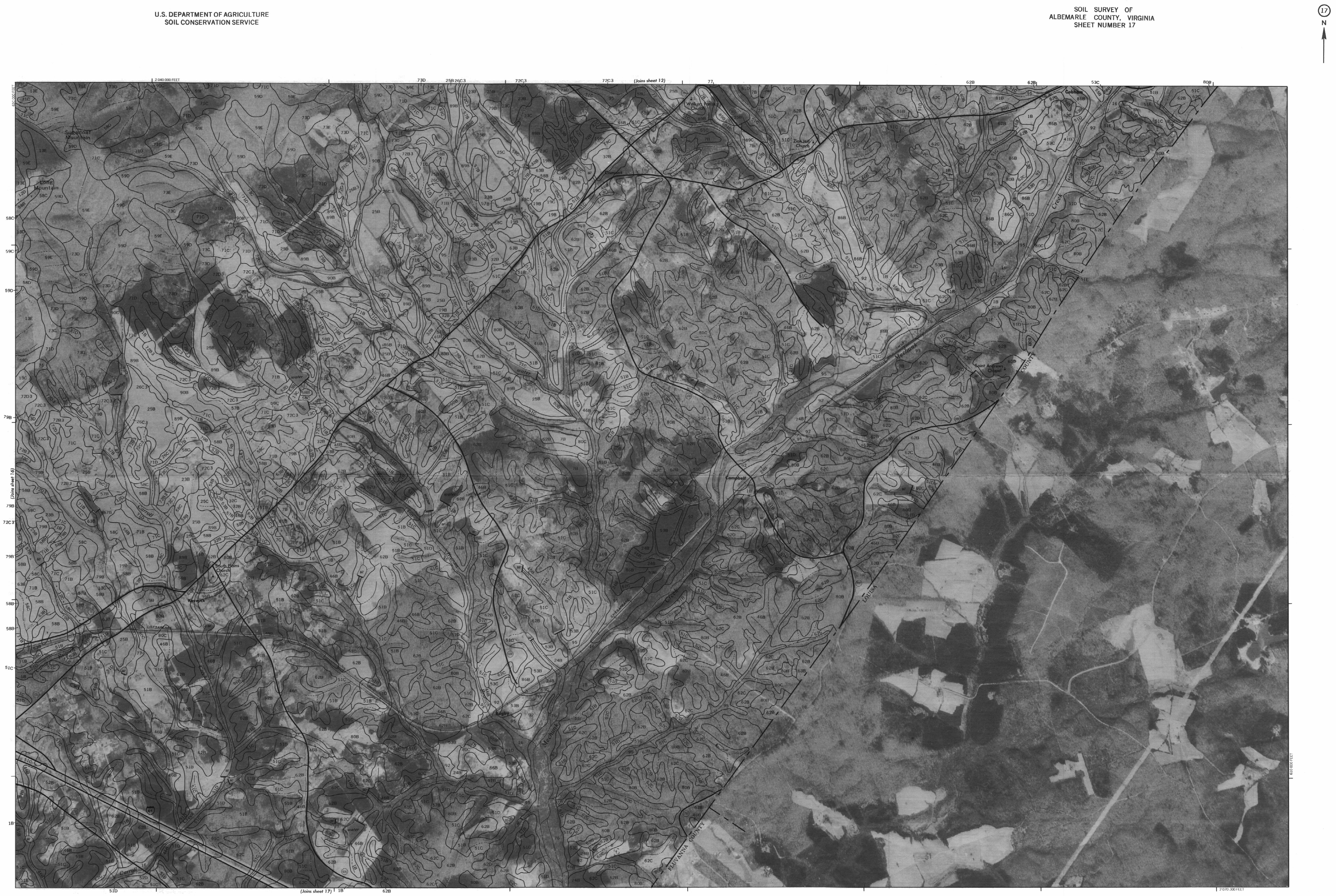
ALBEMARLE COUNTY, VIRGINIA NO. 16

SHEET NO.16 OF 30

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 17



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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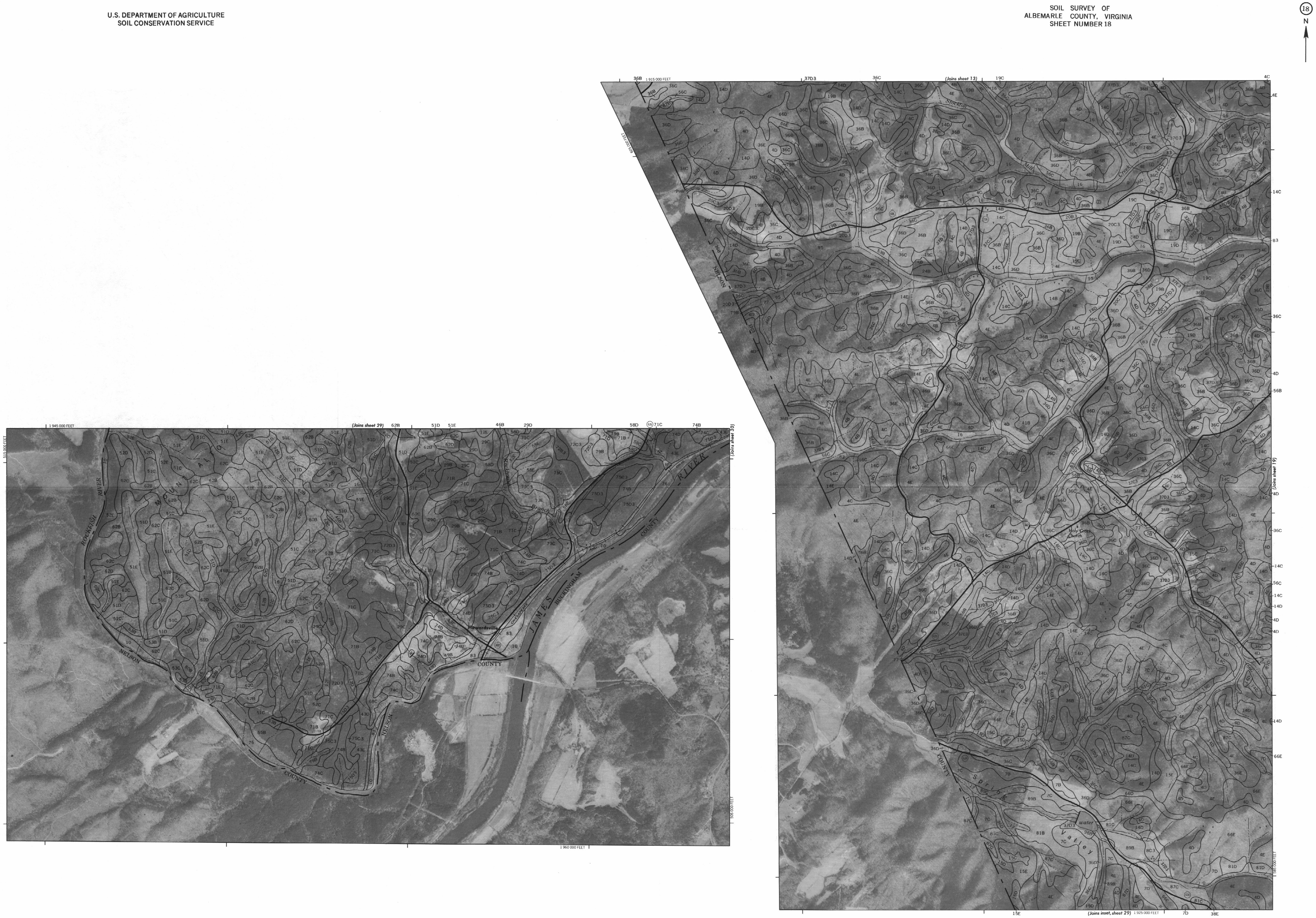
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 18



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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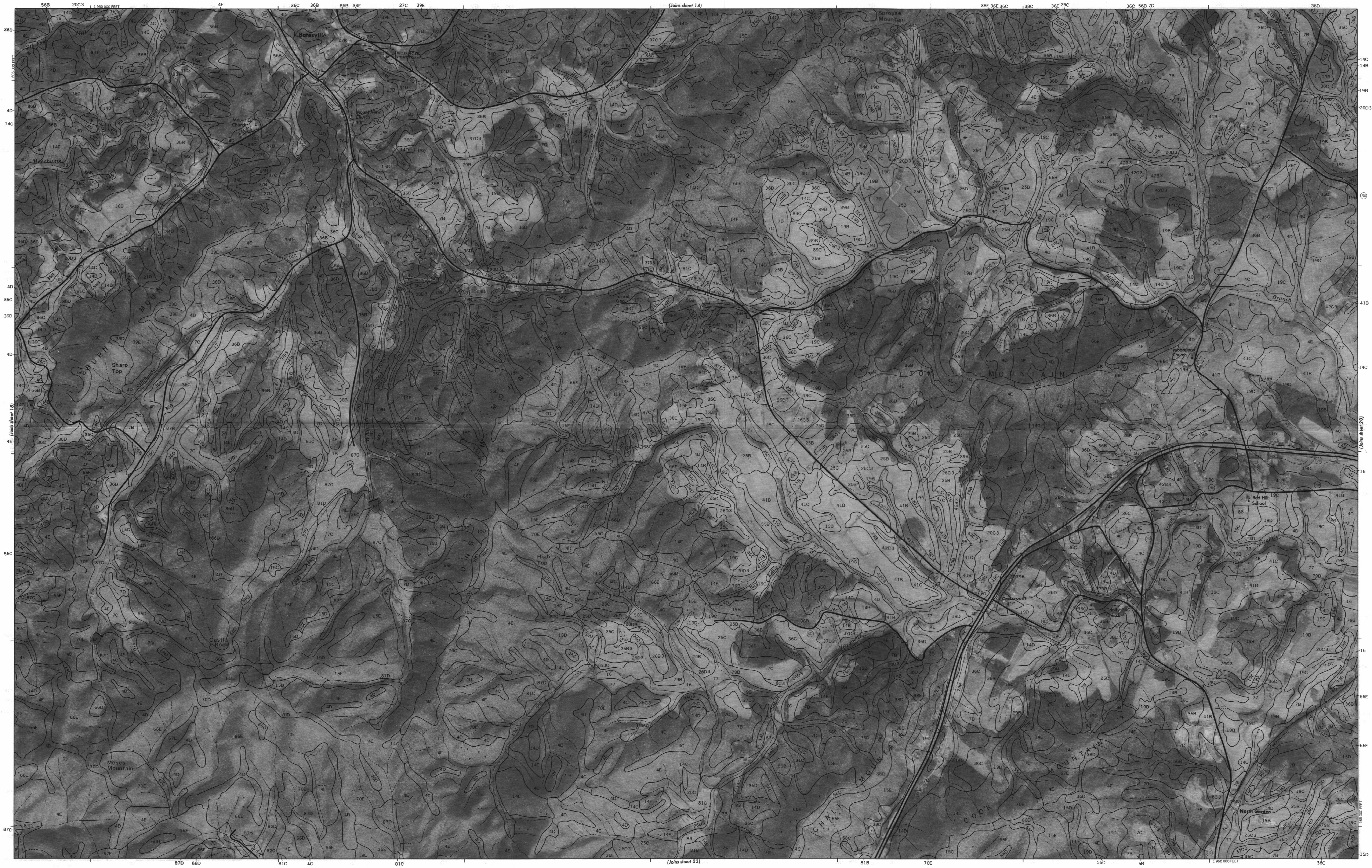
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 19

⑲
N



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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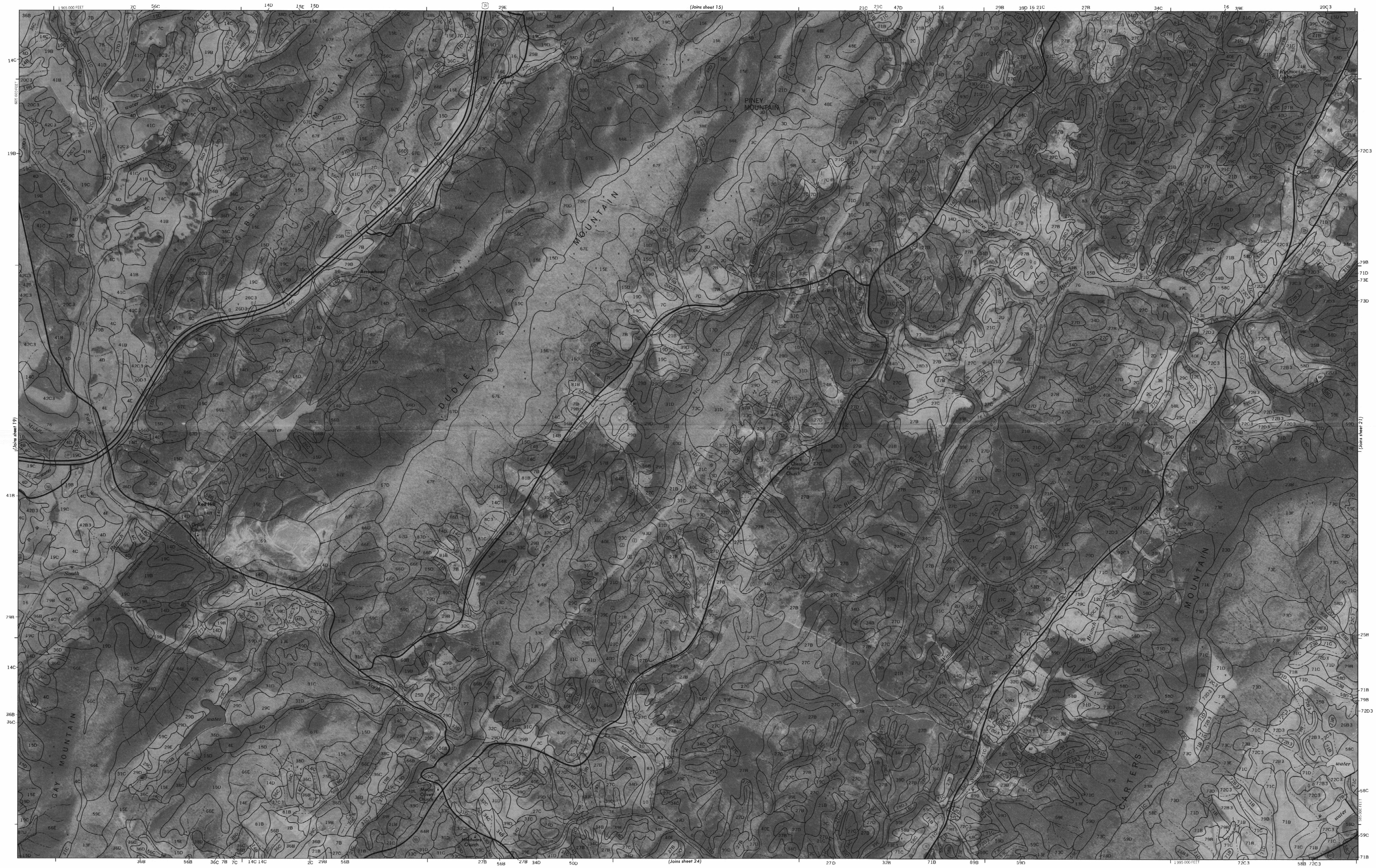
ALBEMARLE COUNTY, VIRGINIA NO. 19

SHEET NO.19 OF 30

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 20

(20)
N



SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

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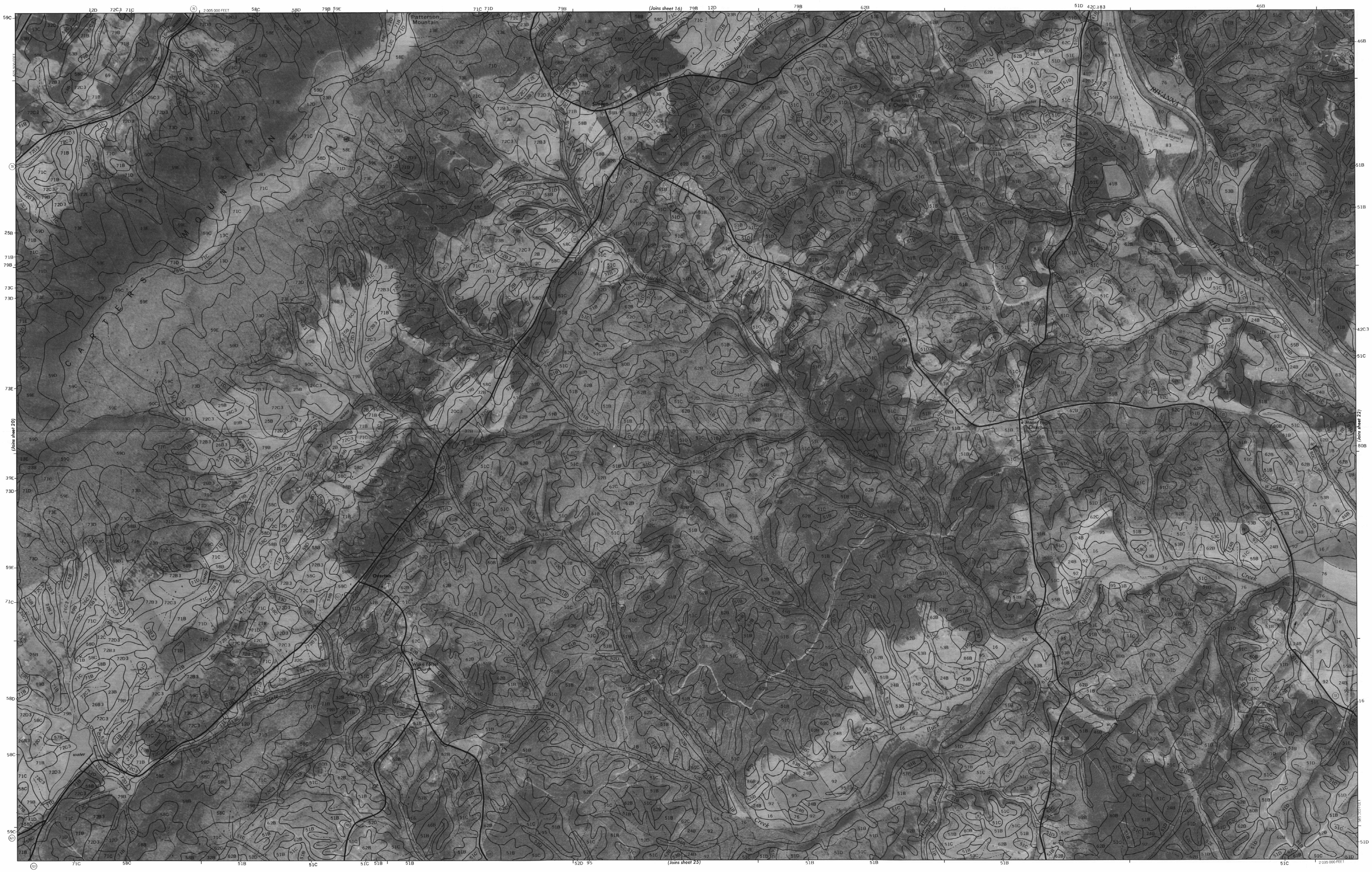
ALBEMARLE COUNTY, VIRGINIA NO. 20

SHEET NO. 20 OF 30

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 21



SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

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U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 22

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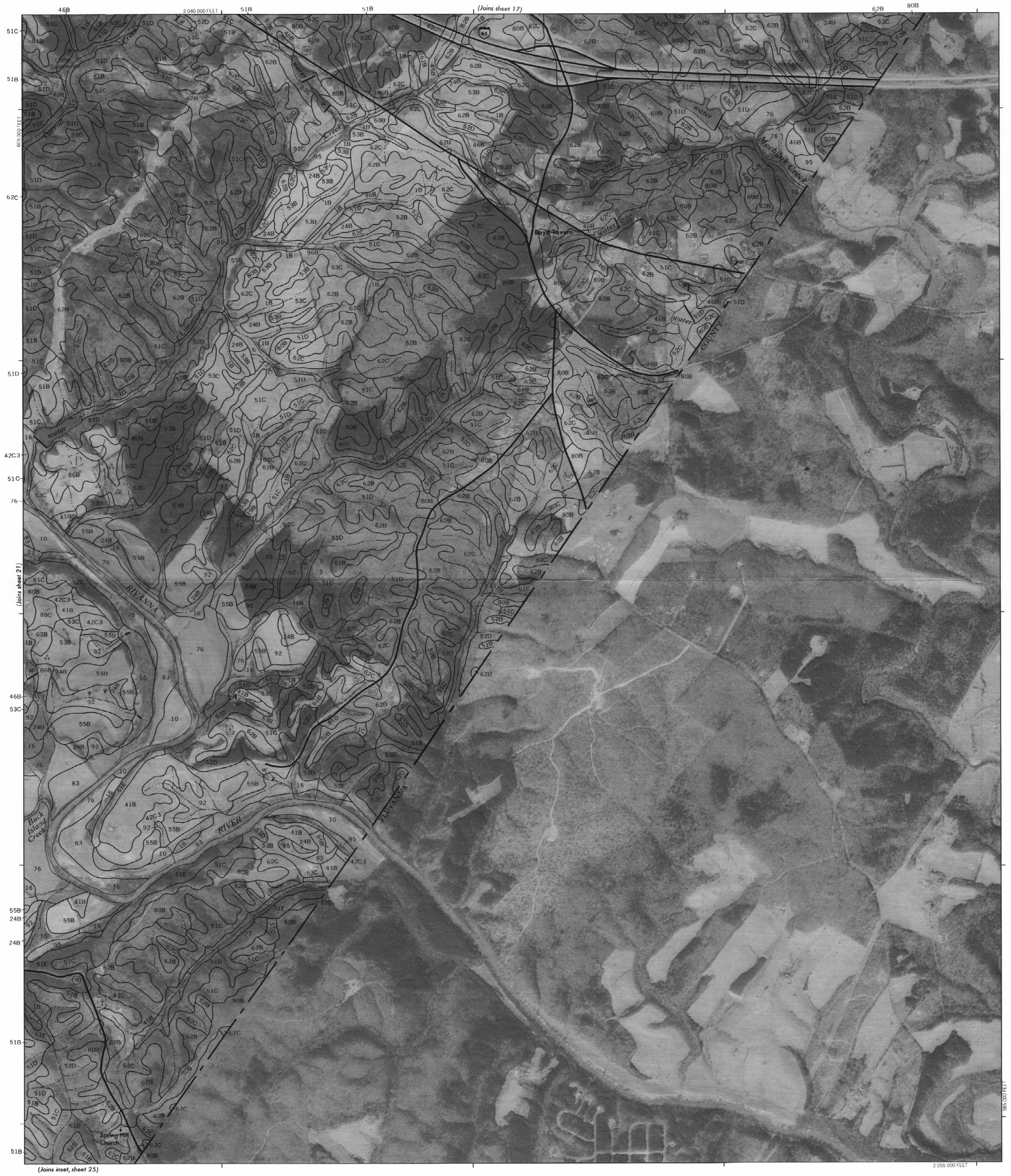
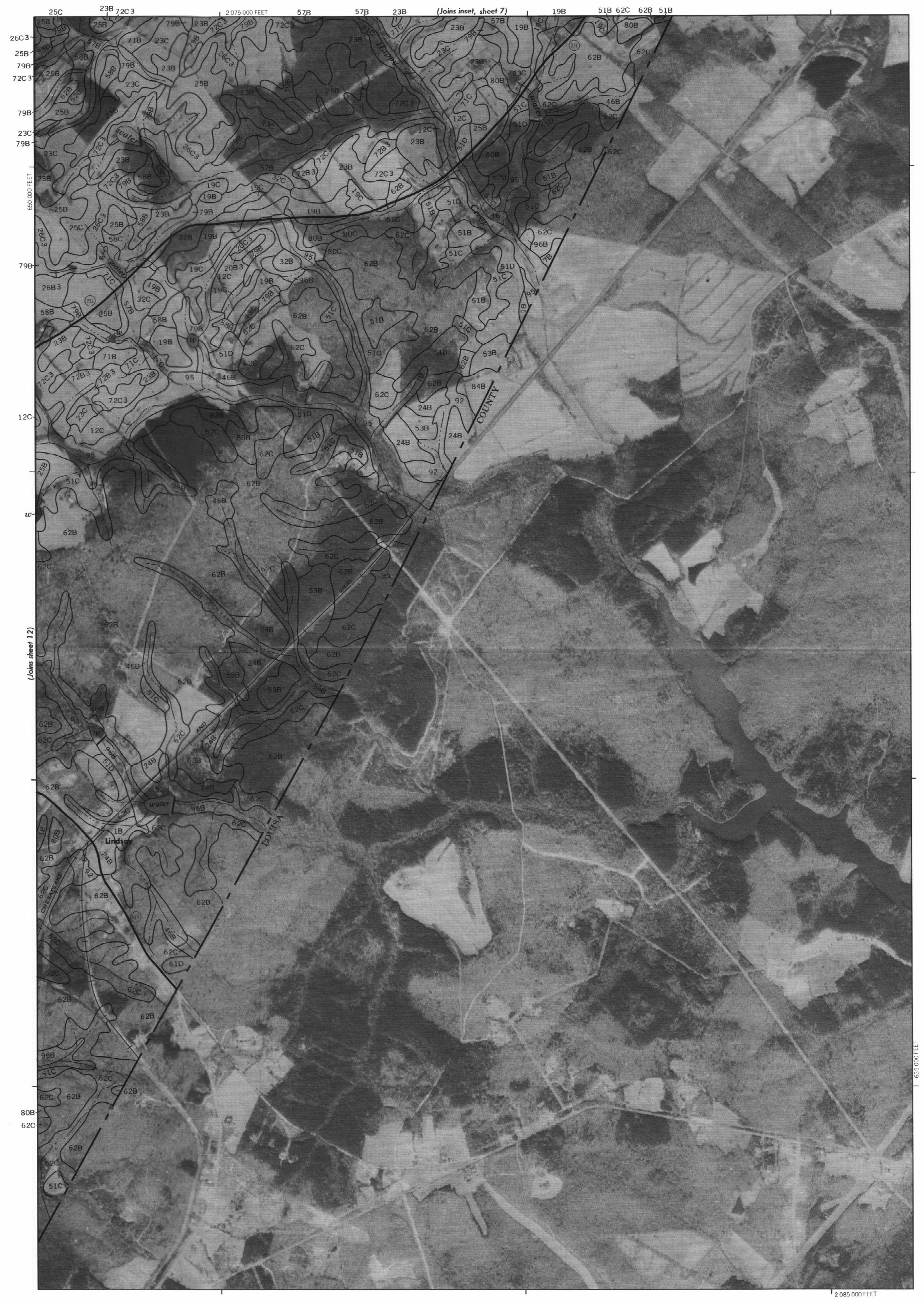
N





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Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 23

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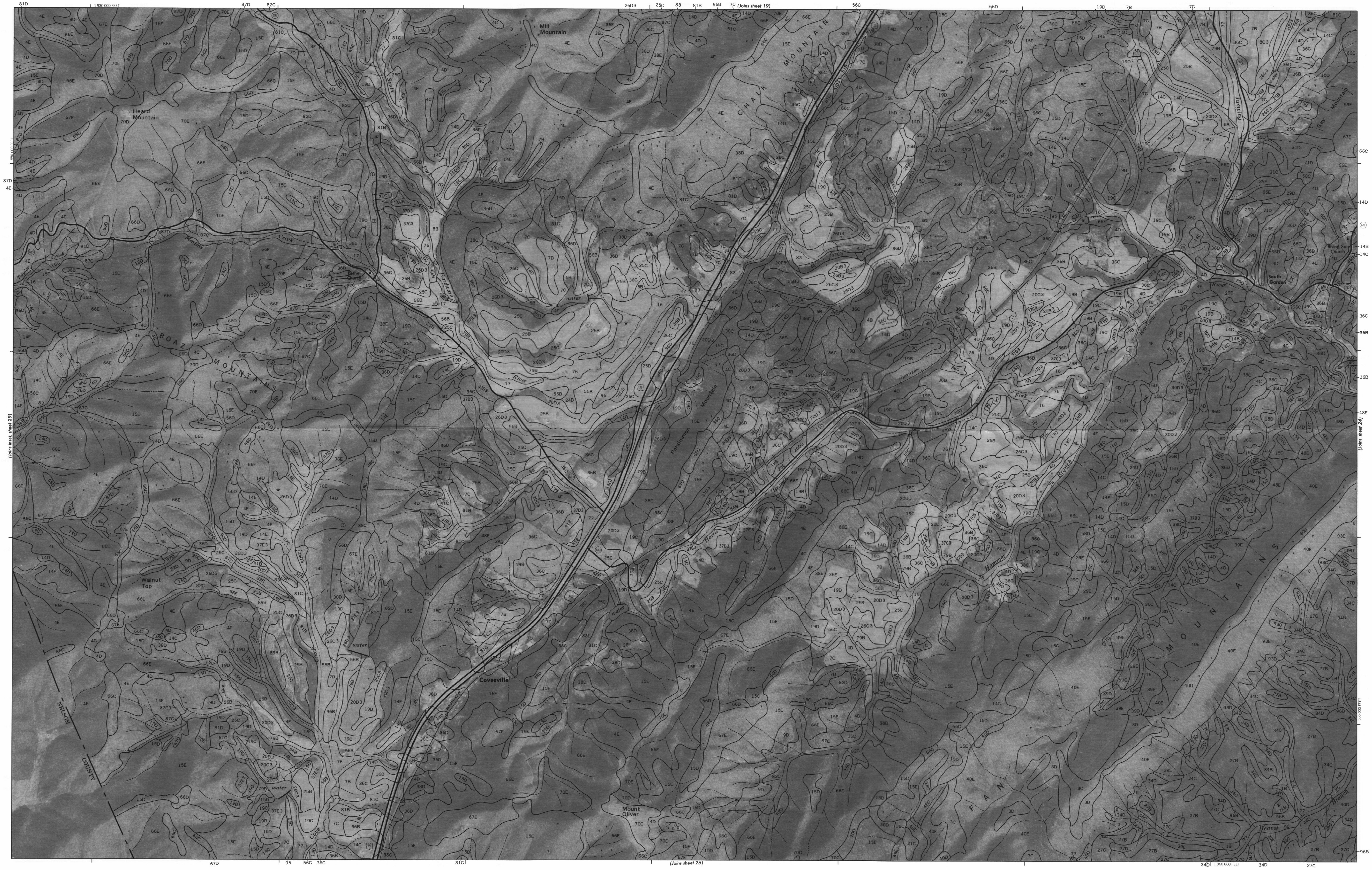
N



SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1977 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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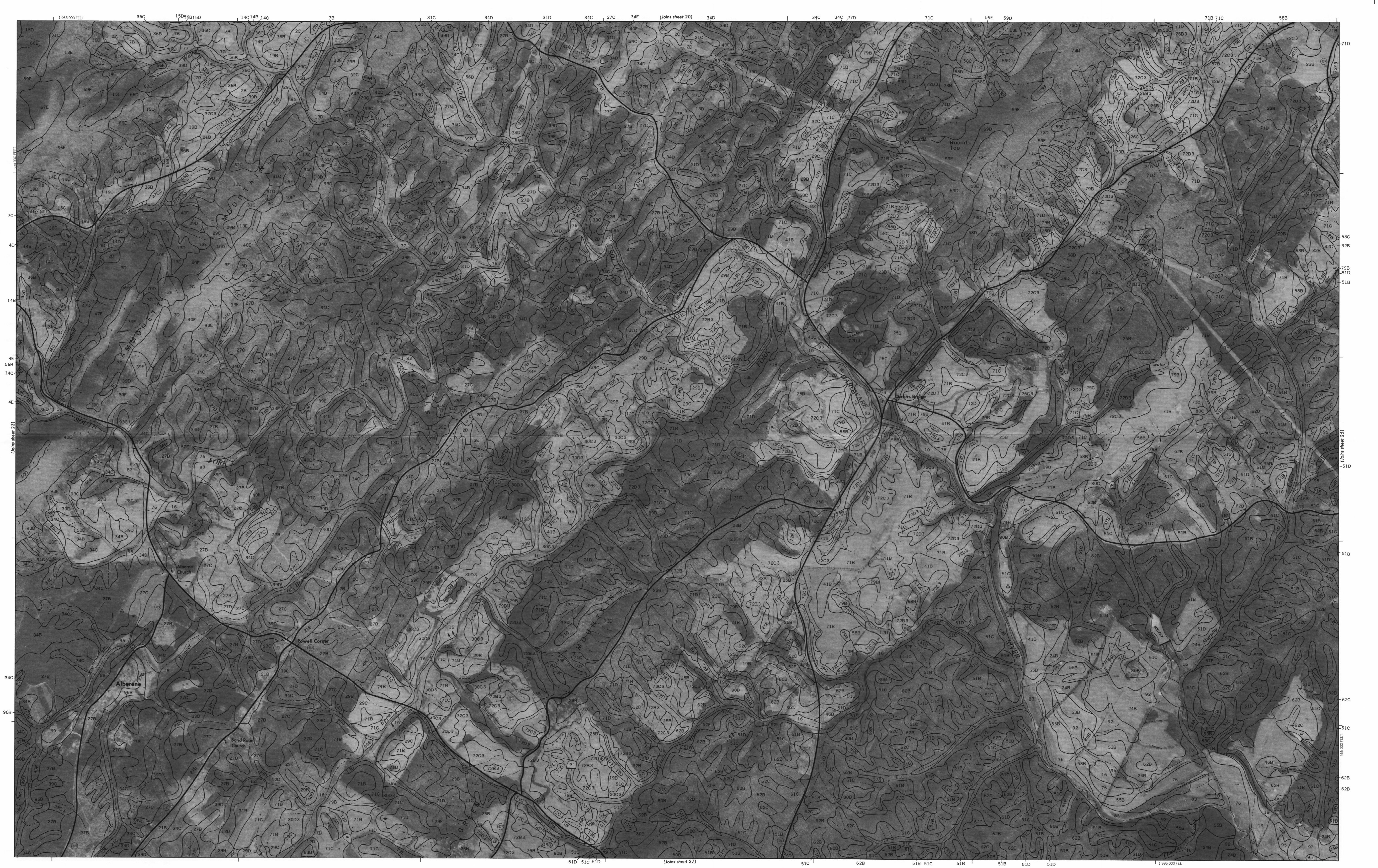
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 24



SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

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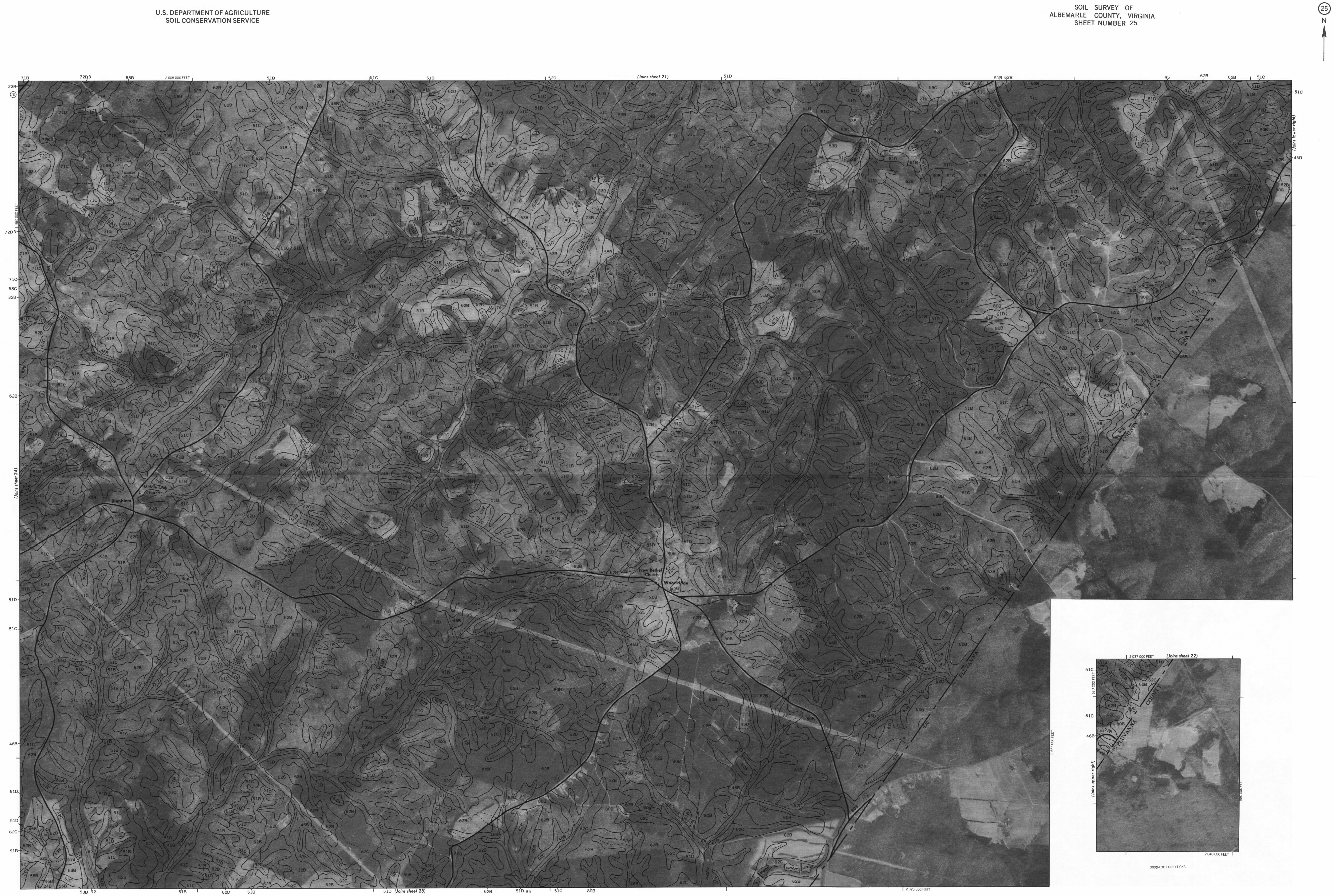
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 25



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 26

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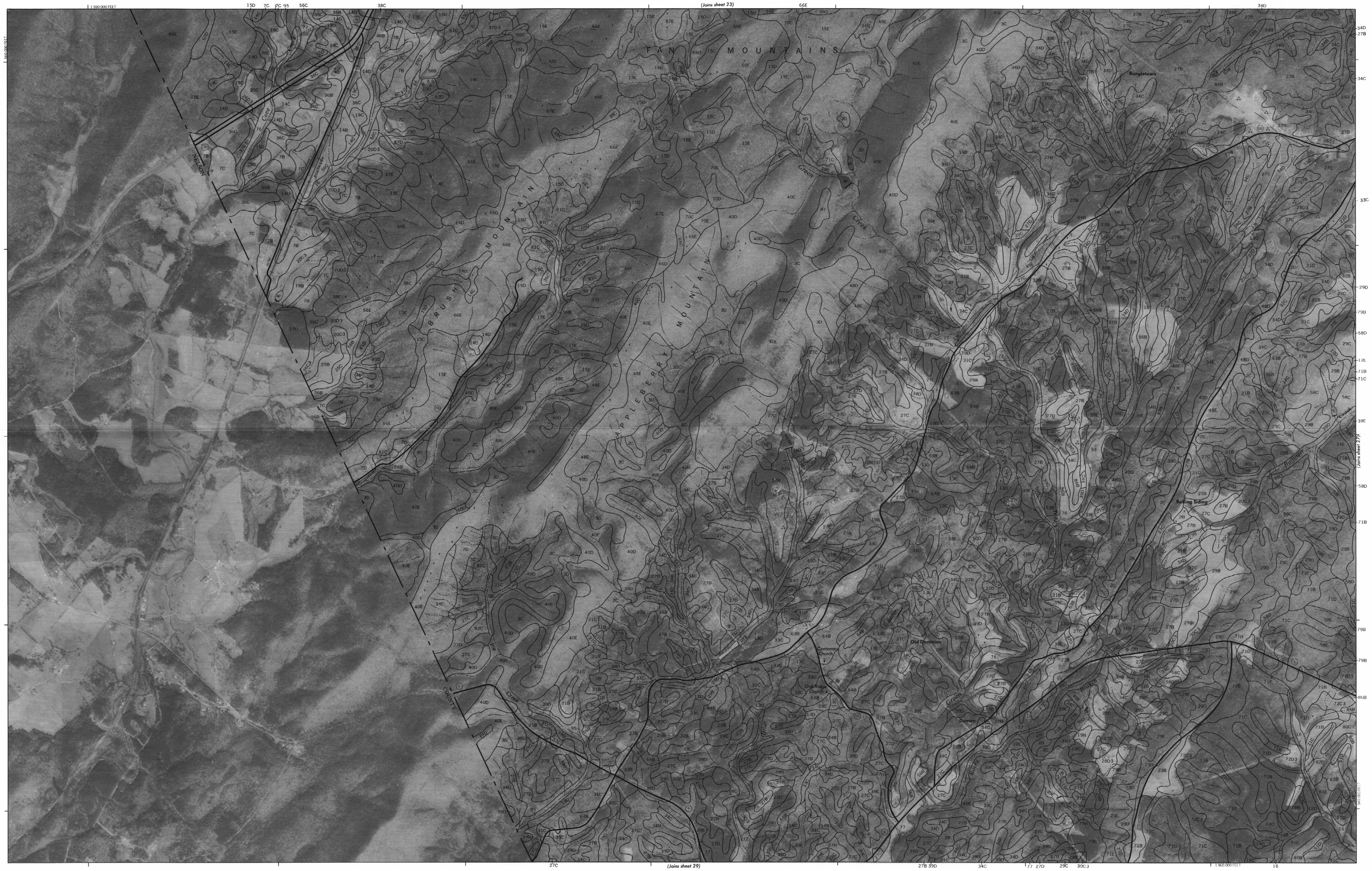

SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

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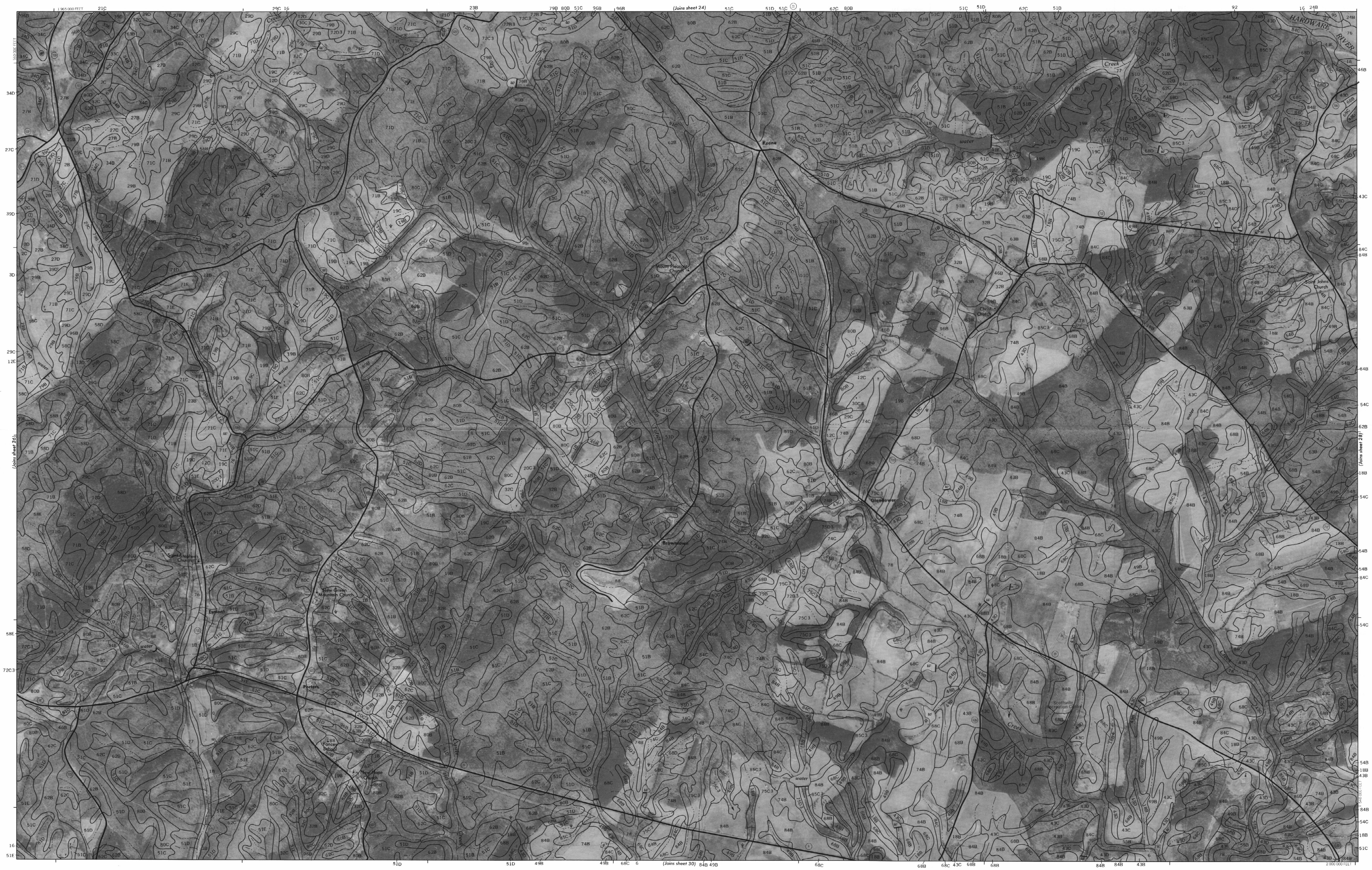
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 27

(27)
N



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SCALE 1:15 840

5000 Feet	4000	3000	2000	1000	0	1 Mile
1000 Meters	800	600	400	200	0	1 Kilometer

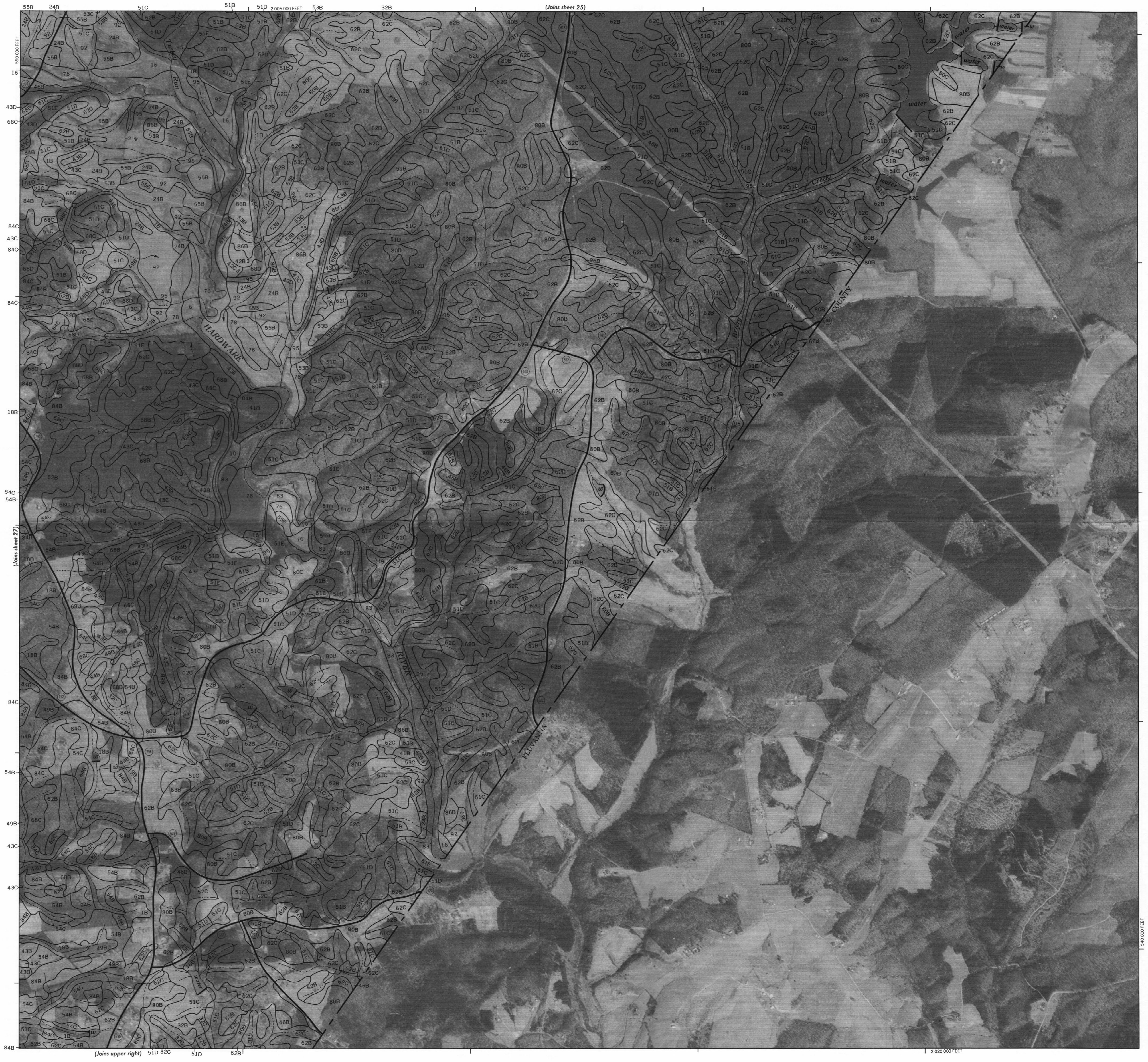
ALBEMARLE COUNTY, VIRGINIA NO. 27

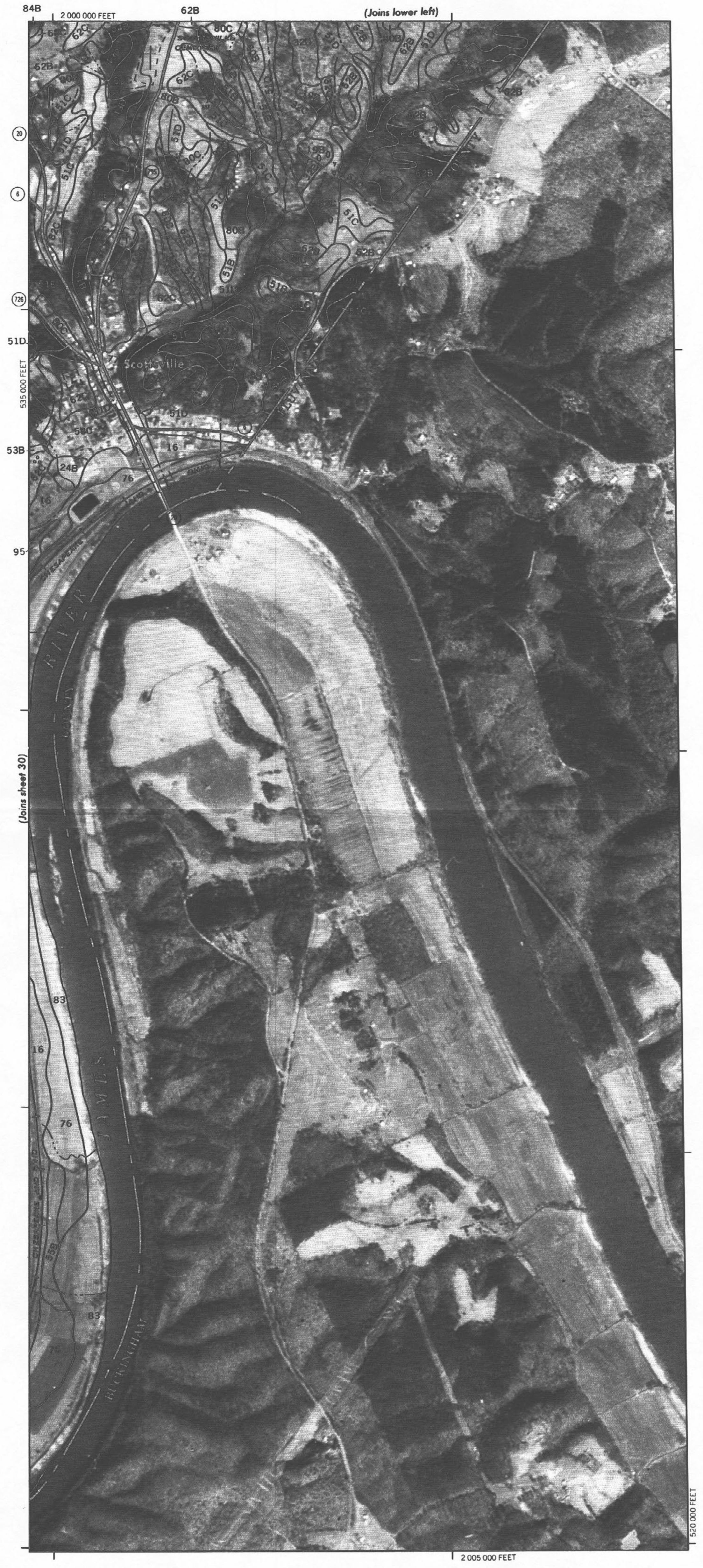
SHEET NO. 27 OF 30

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 28

28
N





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Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

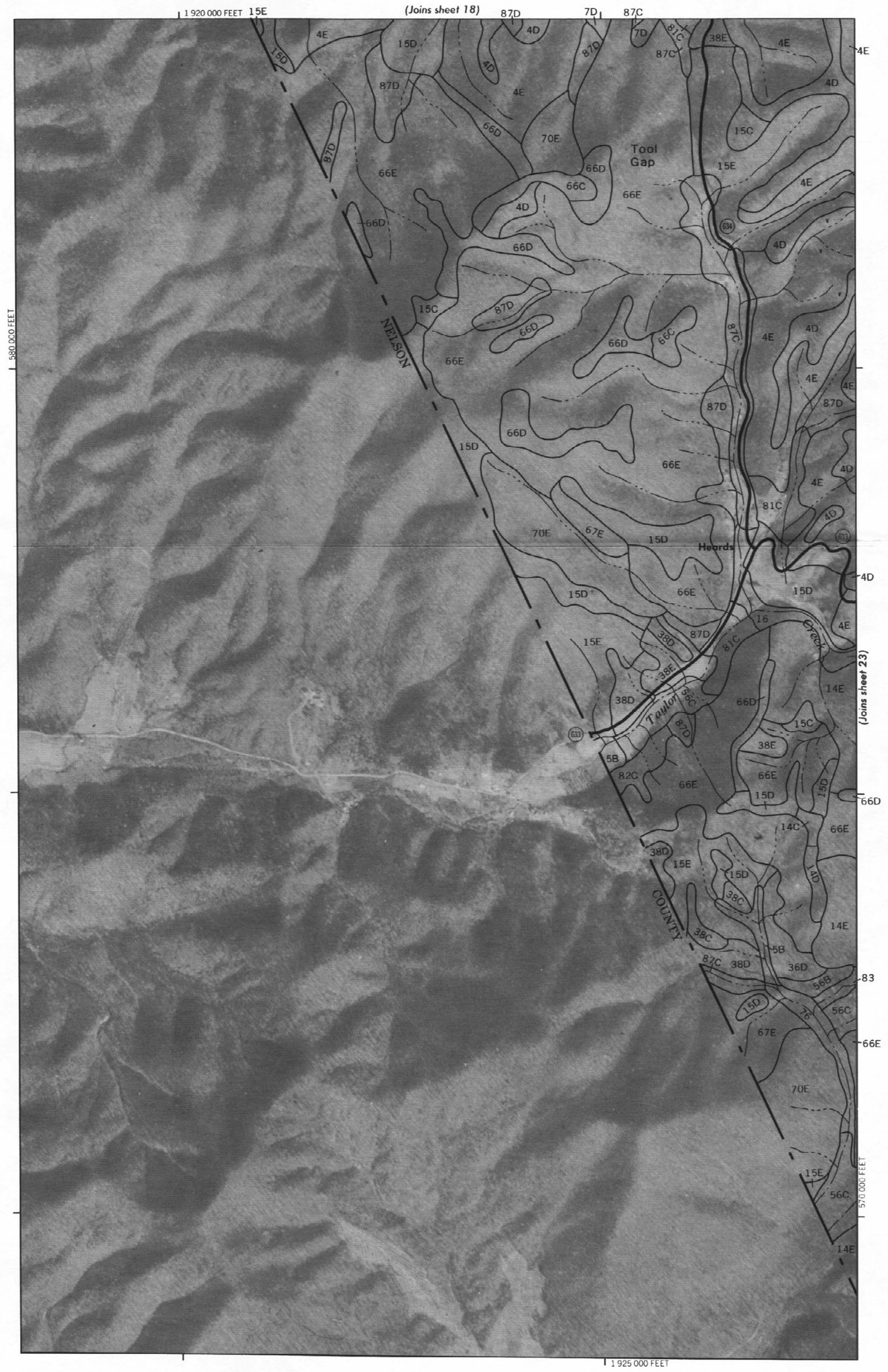
1000 Meters 800 600 400 200 0 1 Kilometer

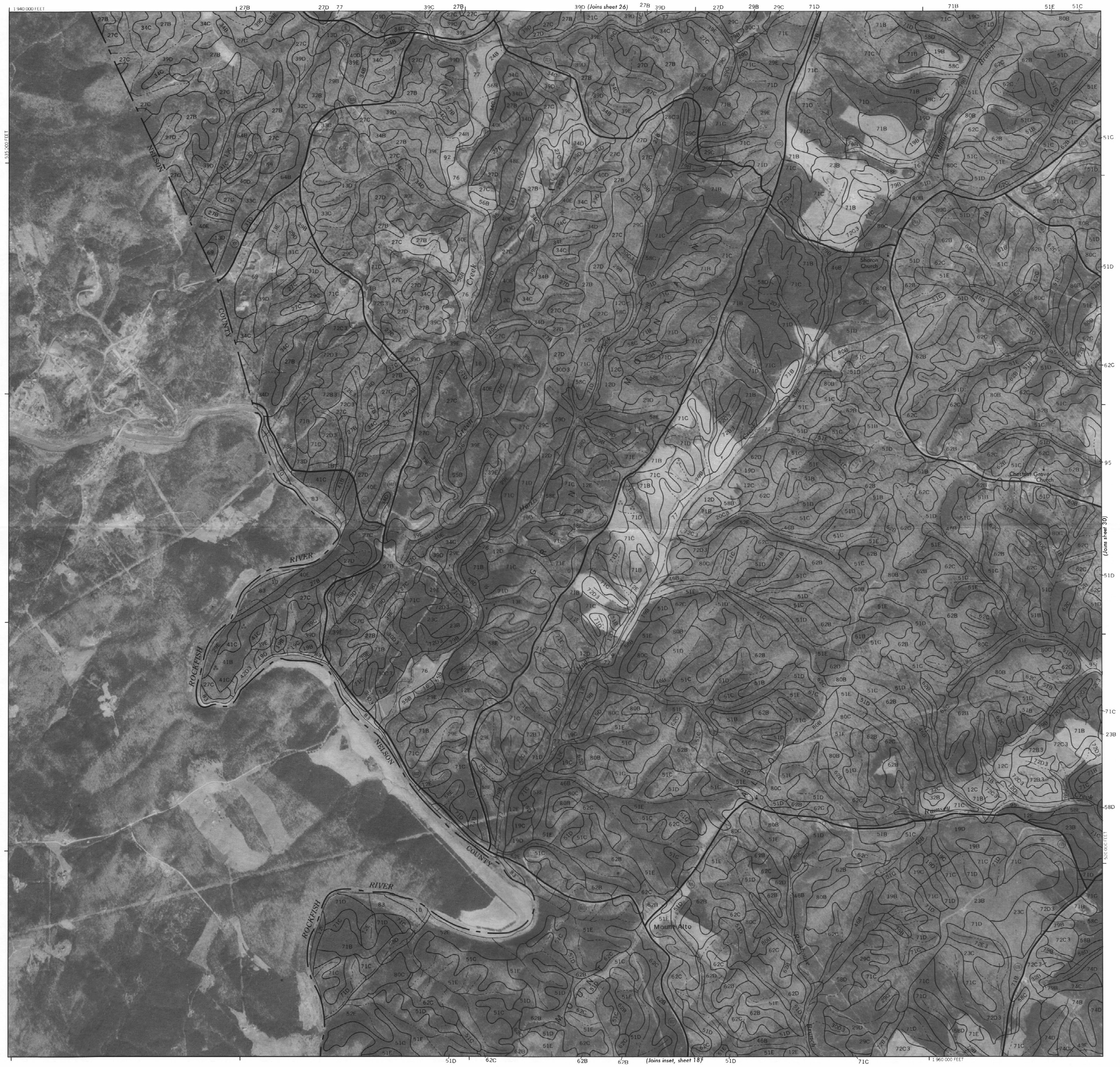
ALBEMARLE COUNTY, VIRGINIA NO. 28

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 29

(29)
N





SCALE 1:15 840
5000 Feet 4000 3000 2000 1000 0 1 Mile
1000 Meters 800 600 400 200 0 1 Kilometer

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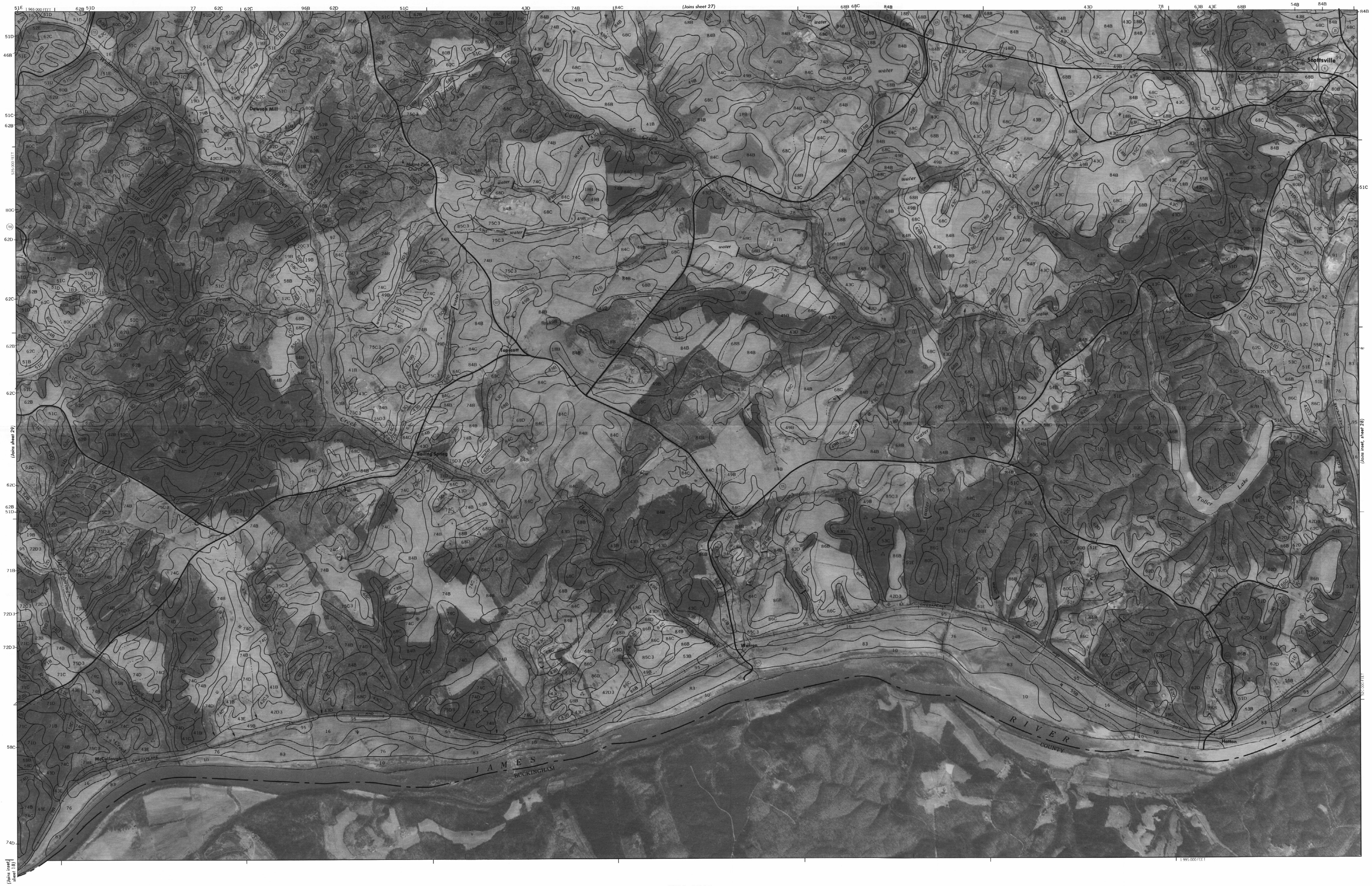
SOIL CONSERVATION SERVICE

SOIL SURVEY OF
ALBEMARLE COUNTY, VIRGINIA
SHEET NUMBER 30



SCALE 1:15 840

5000 Feet 4000 3000 2000 1000 0 1 Mile

1000 Meters 800 600 400 200 0 1 Kilometer

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